Manitoba

Annual Report
2000 - 2001

Conservation

Includes 10% post-consumer waste

MINISTER OF CONSERVATION

Legislative Building
Winnipeg, Manitoba, CANADA
R3C 0V8

The Honourable Peter M. Liba, C.M.
Lieutenant Governor of Manitoba
Government House
Winnipeg, Manitoba
R3C 0V8

Your Honour:

I am pleased to present you with this the 70th Annual Report of the Manitoba Department of Conservation for the year ending March 31, 2001

Yours sincerely,

Oscar Lathlin
Minister

2001
International Year

Manitoba

Deputy Minister of
Conservation

Legislative Building
Winnipeg MB CANADA
R3C 0P8

The Honourable Oscar Lathlin
Minister of Conservation
Legislative Building
Winnipeg, Manitoba
R3C 0V8

Dear Sir

I am pleased to provide the Annual Report of Manitoba Conservation for the fiscal year 2000-2001.

Respectfully submitted,

Norman B. Brandson
Deputy Minister

2001
International Year
of Volunteers

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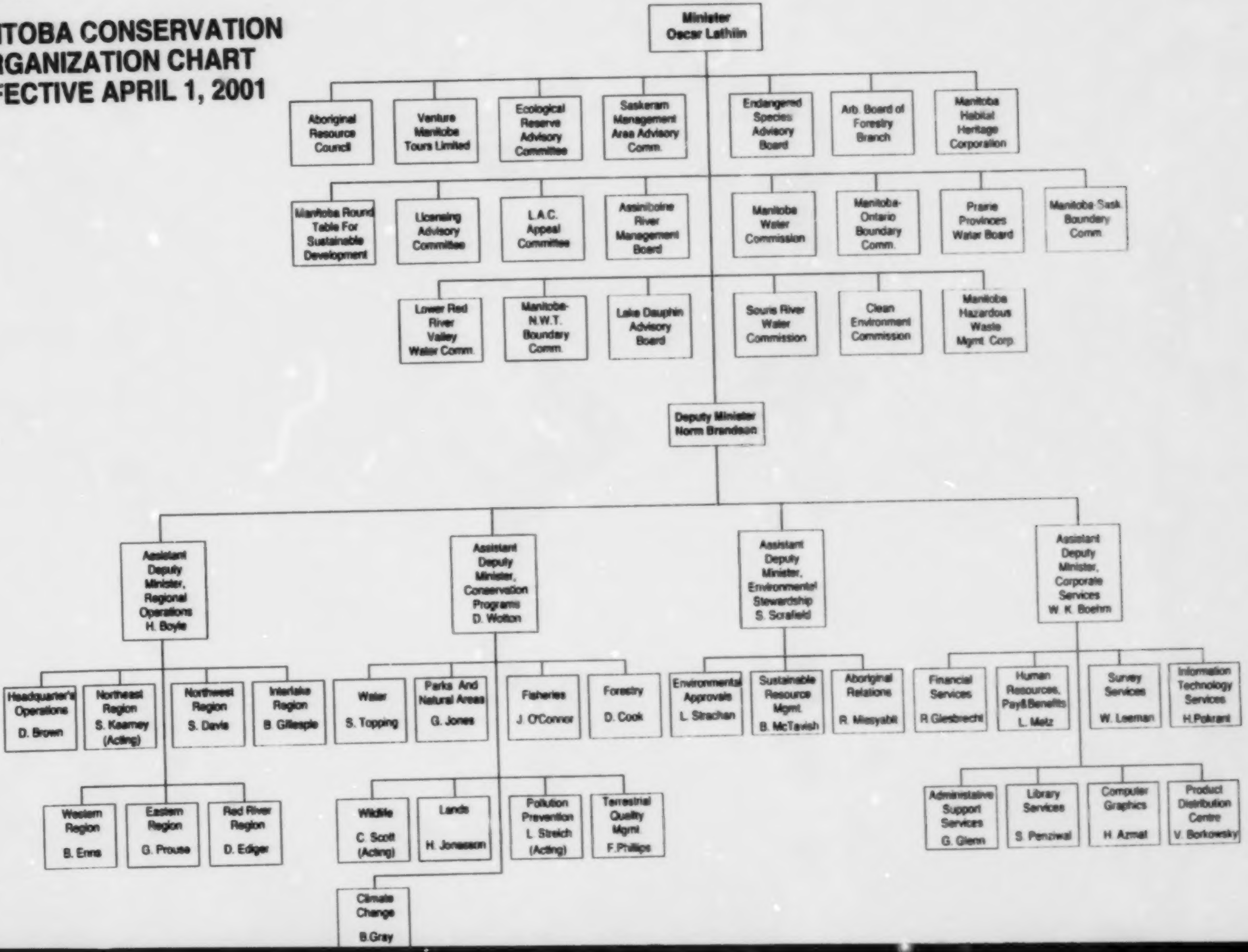
Figure 1.

MANITOBA CONSERVATION ORGANIZATION CHART EFFECTIVE APRIL 1, 2001


Minister Oscar Lathlin
Aboriginal Resource Council
Venture Manitoba Tours Limited
Ecological Reserve Advisory Committee
Saskeram Management Area Advisory Comm.
Endangered Species Advisory Board
Arb. Board of Forestry Branch
Manitoba Habitat Heritage Corporation
Manitoba Round Table For Sustainable Development
Licensing Advisory Committee
L.A.C. Appeal Committee
Assiniboine River Management Board
Manitoba Water Commission
Manitoba-Ontario Boundary Comm.
Prarie Provinces Water Board
Manitoba-Sask. Boundary Comm.
Lower Red River Valley Water Comm.
Manitoba-N.W.T. Boundary Comm.
Lake Dauphin Advisory Board
Souris River Water Commission
Clean Environment Commission
Manitoba Hazardous Waste Mgmt. Corp.
Deputy Minister Norm Brandson
Assistant Deputy Minister, Regional Operations H. Boyle
Assistant Deputy Minister, Conservation Programs D. Wotton
Assistant Deputy Minister, Environmental Stewardship S. Scrafield
Assistant Deputy Minister, Corporate Services W. K. Boehm
Headquarter's Operations D. Brown
Northeast Region S. Kearney (Acting)
Northwest Region S. Davis
Interlake Region B. Gillespie
Western Region B. Enns
Eastern Region G. Prouse
Red River Region D. Ediger
Water S. Topping
Parks And Natural Areas G. Jones
Fisheries J. O'Connor
Forestry D. Cook
Wildlife C. Scott (Acting)
Lands H. Jonasson
Pollution Prevention L. Streich (Acting)
Terrestrial Quality Mgmt. F.Phillips
Climate Change B.Gray
Environmental Approvals L. Strachan
Sustainable Resource Mgmt. B. McTavish
Aboriginal Relations R. Missyabit
Financial Services R.Giesbrecht
Human Resources, Pay&Benefits L. Metz
Survey Services W. Leeman
Information Technology Services H.Pokrant
Administrative Support Services G. Glenn
Library Services S. Penziwal
Computer Graphics H. Azmat
Product Distribution Centre V. Borkowsky

Chapter 1

Highlights

Human Resource Management

- Developed and implemented the new Resource Officer series (289 positions) and the new Resource Management Assistant series (63 positions).
- Developed Executive Management Training Program Policy.
- Developed and implemented Aboriginal Career Development Program (28 participating employees).
- Developed a framework for Succession and Replacement Planning.

Regional Operations

354 fires burned 100,569 hectares, well below the long-term average of 525 starts and 358,425 ha. Spring began with earlier fire starts due to the warm, dry winter, but spring rains reduced hazard. The most serious fires, in late July, caused evacuation due to smoke of residents with respiratory problems from St. Theresa Point, Wasagamack and God's River. The other major occurrence was at Wee Lake, east of Berens River, at the same time. This fire threatened wood supply for Pine Falls Paper and a key microwave site for communications to the northeast.

A 2-year undercover investigation of trafficking in bear parts successfully concluded with fines and costs totalling $24,000 assessed against two Manitoba residents, highest penalty ever assessed under ***The Wildlife Act***.

The annual Association of Natural Resource Enforcement Trainers Conference was hosted in Winnipeg for 52 national and international delegates.

In co-operation with Canadian Wildlife Service, under an *Memorandum of Understanding* with Environment Canada, Natural Resource Officers were trained in application of *Wild Animal and Plant Protection and Regulation of International and Interprovincial Trade Act*.

Norway House commercial fishery had high percentage walleye catches instead of the customary whitefish, engendering requests for quota changes. Changing fish stocks, possibly due to introduction and increasing abundance of rainbow smelt, will require monitoring and administrative adjustment.

Mineral exploration regulated by *Work Permits* was at above-average levels. Geophysics and drilling for base metals and diamonds is widespread in the north, requiring increased inspection.

Concern about impact of wild rice on northern fish habitat broadened review to include Fisheries and Oceans Canada. This will require rice growers to do more initial lake studies and project development prior to licencing.

A new pumping station was constructed near The Pas to assist with Carrot River Valley drainage. The station comprises four 48 inch pumps, each capable of transferring 55,000 US gallons/minute and drains about 120 square miles.

Development of an inter-provincial co-operative moose management strategy is underway with Saskatchewan Environment and Resource Management and First Nations near The Pas to rebuild depressed moose populations in Cumberland Delta and Saskeram Marsh.

Co-management discussions were initiated with West Region Tribal Council and a Memorandum of Understanding was signed, outlining process for developing a joint management plan for Dauphin Lake fishery.

About 500 hunter-shot elk, 200 moose, and 170 deer were examined to monitor bovine tuberculosis in Riding Mountain National Park and Duck Mountain areas, in co-operation with Manitoba Agriculture and Food, Parks Canada, and Canadian Food Inspection Agency.

Beach Safety staff at Birds Hill, Grand Beach, and Winnipeg Beach, estimate 900,000 people used these beaches, averaging 10,000/day, of which 87% were at Grand Beach.

In co-operation with Manitoba Hydro, Manitoba Transportation and Government Services, and a local advisory group, four tunnels were installed under PTH #17 adjacent to Narcisse Snake Dens, to reduce snake mortality on the Highway. Due to success, more tunnels are planned for 2001 with installation of snake barrier fencing, traffic speed reduction signs, and increased efforts to improve public awareness of the red-sided garter snake population at Narcisse.

A moose recovery project was implemented at Hecla Island, involving habitat enhancement and live removal of black bears to reduce calf predation. 12 bears were removed from the island and 20 hectares of willow were shear-bladed. A prescribed burn is being considered.

Over 200 adult sturgeon were tagged in Winnipeg River between Slave Falls and Seven Sisters and eggs collected during the spawning season. Over 100,000 sturgeon fry and 11,000 sturgeon fingerlings were re-stocked in Nutimik Lake area and below Seven Sisters Hydro dam.

As part of a co-operative moose management initiative with First Nations, local wildlife associations, Tembec Forest Resource Management/Pine Falls Paper, and others, the Chief George Barker Co-operative Wildlife Area was established to protect and manage moose in a new forest harvest operating area near Beaver Creek in Eastern Region.

Water Resources

- A pre-commitment study of options to increase level of flood protection for Winnipeg was initiated.
- A database was developed on flood protection works in Red River valley to provide details and elevations to the public and government agencies.
- A comprehensive study of water management issues affecting upper Assiniboine River Basin was completed and review of recommendations begun.
- A draft *Framework for Pembina River Basin Management Plan* was completed.
- A water strategy, based on *Manitoba's Water Policies*, leading to comprehensive water legislation and locally-driven water management based on watershed boundaries, was initiated.
- Guidelines for undertaking watershed planning and management for sustainable, integrated resource management and development were initiated.
- A stakeholder-supported, consensus-building process to prepare an inter-provincial management plan for Swan Lake watershed was initiated.
- Extensive studies of rural groundwater quality and agricultural impacts were undertaken.
- The Branch Internet web site was re-designed and expanded.

Parks and Natural Areas

New Park Reserves were established at Birch Island and Fisher Bay. 13 Wildlife Management Areas were protected, in whole or part, as natural areas. A website for Protected Areas Initiative was established.

The Hayes River was accepted as a Candidate in the Canadian Heritage Rivers System.

Major projects included administration of Hecla Historic Lands architectural/landscape guidelines, Hecla trails expansion, and several campground expansions in Central and Eastern Regions. Site design and visitor centre landscaping were completed for West Hawk Lake Fish Hatchery and Spruce Woods Visitor Centre. A development strategy was concluded for Falcon Lake Waterfront and design of South Whiteshell Trail continued. Angling opportunities were developed at Birds Hill Lake in co-operation with Manitoba Fly Fishers

Association and further development was undertaken at Lyons Lake in association with Fish Futures. A variety of plans were completed to guide small redevelopment projects.

A comprehensive waterfront safety signage program was implemented at Grand Beach, Birds Hill, and Winnipeg Beach Provincial Parks.

About 4,323 transient campsites were available, of which 2,658 (61.5%) were available for reservation, and 1,500 seasonal campsites. 163,838 transient camping nights and 43,000 seasonal camping nights were sold. About 5 million people visited Provincial Parks.

Parks Reservation Service placed more campers on sites through reservation; over 28,000 reservations were made, an increase of 12% from the previous year.

New interpretive publications, maps, and signage were developed for sites in the Parks system.

Forestry

- Completed a new forest inventory for Forest Management Units 23 and 31, and initiated a new inventory for Forest Management Unit 20 in southeast.
- Initiated review to develop a proposed Crown Stumpage model.
- Entered into agreement and began implementing Phase 1 of an ecologically-based Forest Inventory and volume sampling program for Mountain Forest Section, with Louisiana Pacific Canada.
- With Regional Operations, supervised planting 4.46 million trees on about 2,100 hectares and site preparation of another 1,208 hectares of cutovers.
- Completed *First Nations Land Use Studies*, and a report on public values, as part of Ecosystem Based Management Pilot Project on east side of Lake Winnipeg.
- Cooperated with International Institute for Sustainable Development and Skownan First Nation on workshops and a video, *First Nations Values in the Forest*.
- Continued a *Branch Strategic Plan and Organizational Review*.

Fisheries

Winnipeg's Urban Angling Partnership, comprising Mid-Canada Marine Dealers Association, Manitoba Wildlife Federation, Fish Futures Inc., *The Complete Angler*, City of Winnipeg, and the government of Manitoba, received the *2000 Canada Recreational Fisheries Award*. Since inception of the Award in 1989, only three winners have been from Manitoba. The award is presented to individuals and organizations in recognition of their work to protect and enhance recreational fisheries and habitat, improve angling opportunities, and encourage industry and tourism development.

A Sustainable Development Website was developed to integrate these concepts into the new Kindergarten-Grade 8 *Science: Manitoba Curriculum Framework of Outcomes*. The site is a Manitoba first in integrating fisheries information into science curriculum via the Internet. The site was promoted at teacher workshops and conferences, including the Special Areas Group (Science) workshop. Work will continue with educators to develop exercises for Grades 9 to 12, for implementation in fall 2001.

With assistance from the Department, Manitoba Wildlife Federation, and local game and fish affiliates, Sturgeon Creek Association, and Fish Futures Inc. completed installing a fishway in Sturgeon Creek at Grant's Old Mill. The fishway is unique in being located in a major urban centre.

At Whiteshell Fish Hatchery, a visitor centre was constructed with assistance of Fish Futures Inc. Summer tours of the Hatchery are more popular each year, with over 67 in 2000 (1,236 individuals). The Visitor Centre provides a sheltered area for interpreters to begin tours, washrooms, and drinking water. Interpretive exhibits for the Centre have been designed and will include information on species reared at the Hatchery, life stages of fish, how water is used, history of the Hatchery, and the like. These will be constructed and installed in 2001.

The Branch continued participation in the national Recreational Fishing Task Group and co-chaired the national Freshwater Fish Strategy Task Group. Reporting to the Canadian Council of Fisheries and Aquaculture Ministers, these Groups develop coordinated action plans that involve stakeholders and maximize management efficiency and effectiveness. Key actions under the Recreational Fishing Task Group will include nationally-coordinated participation in a National Fishing Week and development of a national recreational fishing website in 2001.

A Recreational Fishing League for youth, 9-15 years old, was a pilot project in 2000. Seven teams of eight children with two coaches (in Dauphin, Lac du Bonnet, Neepawa, Selkirk, Shilo, Swan River and West St. Paul), fished once a week for six weeks. Teams were awarded points by lengths of fish caught to determine a League winner. A website was developed to allow participants to follow league action. Partners included Manitoba Wildlife Federation, Mid-Canada Marine Dealers Association, Pure Fishing (Berkley Canada), and Recreation Connections. An expanded program in planned for 2001 with Manitoba Wildlife Federation as lead organization.

Due to significant increases in transportation costs in recent years, fishermen asserted that increased Northern Fishermen's Freight Assistance Program funding was essential, or many of them—particularly those in remote Northern Manitoba—would no longer be able to afford to fish. They also sought price support for suckers, similar to Saskatchewan's program. The Department undertook a major program review and additional funding for the NFFA program was approved for 2000-01 and 2001-02. The new program funding cap is $410,000 (up from $250,000).

Wildlife

- Partners in Flight Manitoba identified high priority bird species for conservation action.
- Nocturnal Owl Survey began its second decade of monitoring owl populations.
- 6th Prairie Conservation and Endangered Species Conference (Winnipeg, February) attracted almost 400 delegates from three Prairie Provinces and northern states.
- Number of land-use proposals reviewed for wildlife habitat impacts increased by 50% over last year.
- Youth Hunting License Package, with reduced fee, now includes deer and upland gamebirds.
- Harsh winter conditions engendered above-average mortality on some deer ranges.
- A spring season for snow geese in all Manitoba was introduced to correct overpopulation on fragile arctic nesting grounds.
- Deer hunting licence sales remained similar to previously, resident bear licenses were down slightly, but non-resident sales were up.
- Populations of barren-ground caribou are stable or increasing, while coastal herds are stable.
- Monitoring Bovine Tuberculosis (TB) in wild ungulates in Riding Mountain area continued, with only 5 out of over 2,000 cervids tested found to be infected in the last four years.
- Review of the Problem Beaver Control Program was completed.
- Urban Goose Working Group continued to investigate problems with geese in and around Winnipeg, with emphasis on airport safety.
- Harvest levels for coyotes and muskrats increased.
- Two-day workshop for aboriginal trappers provided information on terms of the *EU-Canada Agreement on Humane Trapping Standards*.
- Completed the Manitoba component of ***Wild Species 2000: the General Status of Species in Canada*** report. (http://www.wildspecies.ca)
- Volunteer-based Dragonfly Survey identified 6 new species.
- *Woodland Caribou (Rangifer tarandus caribou) Conservation Strategy for Manitoba* was completed and released.
- A new Alien Invasive Species program was initiated to address this significant threat to biodiversity.
- Conservation Data Centre's computer biodiversity database grew to over 3,300 mapped priority species occurrences.
- Surveys of six rare plant species produced several new records and reconfirmed historical records.

- Five fact sheets were produced on plant and animal species at risk: one describing ***The Endangered Species Act***, and detailed fact sheets on western prairie fringed orchid, small white lady's-slipper, piping plover, and loggerhead shrike.
- Meeting of the International Western Prairie Fringed Orchid Working Group was hosted.
- Completed a Riverbottom Forest Assessment project in southwest to promote co-operative restoration and management of depleted riverbank woodlots.
- Assisted with completion of report ***Guidelines for Nocturnal Owl Monitoring in North America***.
- Formed an Eastern Manitoba Recovery Action Group for the endangered eastern loggerhead shrike. Partners include Manitoba Cattle Producers Association, Ducks Unlimited, Manitoba Hydro, Portage Naturalists, City of Winnipeg, and landowners.

Policy Co-ordination

Northern Flood Agreement negotiations with Cross Lake First Nation are progressing. Grand Rapids Forebay negotiations continue, as do negotiations on other flood issues and on Treaty Land Entitlement.

The Branch, in part, represented the Department in a multi-department Lands Related Information System initiative, to develop a government-wide framework for managing lands-related information. Manitoba Lands Initiative offers an "in-house" approach to sharing GIS data across government.

The Branch is co-ordinating start of a major new undertaking, East Side of Lake Winnipeg Planning Initiative. This broad-area planning process will include participation by communities and other stakeholders to develop a balanced, integrated, and sustainable plan for landuse and resource allocation.

Environmental Approvals

- City of Portage la Prairie: assisted with pre-licencing activities for expansion of sewage treatment plant to accommodate the Simplot potato-processing plant.
- Mandatory Certification for Operators of Water and Wastewater Facilities: developed a draft certification program for operators, assisted by a stakeholders committee. Worked with Red River College to expand training and educational opportunities for operators.
- Drinking Water Advisory Committee Report: assisted Chief Medical Officer of Health to review drinking water programs, focusing on microbiological safety.
- Investigation of Groundwater Contamination: water supplies for eight communities were placed under *Boil Advisories*. Co-ordinated investigations into sources of contamination and worked with Health and Municipal Officials to provide safe water.
- Assessment of Northern Water Utilities: worked with Manitoba Aboriginal and Northern Affairs and Manitoba Water Services Board to assess condition and performance of water-treatment facilities under their jurisdiction, to priorize for replacement.
- City of Brandon: work continues on wastewater treatment system and treatment facility serving Maple Leaf Meats plant. Licencing activities and establishment and maintenance of a database of effluent quality performance will facilitate next phase of water quality management for the Assiniboine River.
- Provencher Paired Bridges Project: co-ordinated environmental assessment and licensing. Winnipeg filed a *Proposal* and an *Environmental Impact Statement* to replace the vehicular bridge and construct a separate pedestrian bridge. Public consultation and Technical Advisory Committee review was completed; a licensing decision is expected in spring 2001.
- Aquifer Management and In-stream Flow Studies: provided technical support for development of a water quality protection plan for Oak Lake Aquifer, and continued support of *Winkler Aquifer Management Plan* implementation. Participated on technical committee to direct determination of in-stream flow requirements on Assiniboine River.
- Flood Protection Works and Irrigation Development: participated in, and provided technical support for, several flood protection studies. Participation continued on Federal/Provincial Committees and Working Groups on planning and regulation of irrigation development.

- Hydro Projects: Manitoba Hydro continued planning developments, including three northern generating stations, and a high-voltage transmission line along east side of Lake Winnipeg. The proposed generating stations are Gull Rapids Station (Nelson River), Wuskwatim Station (Burntwood River), and Notigi Station (Notigi Control Structure). The Branch met periodically with Manitoba Hydro and Canadian Environmental Assessment Agency about these developments. Manitoba Hydro was issued an *Environment Act Licence* for construction of a new 115 kV switching substation near Hudson Bay Mining and Smelting facilities at Flin Flon. In the south, a new combustion-turbine generating station was licenced. A pre-proposal Technical Advisory Committee meeting was held on construction of a high-voltage transmission line from Glenboro to North Dakota.
- Pesticide Regulations: Health Canada announced an *Action Plan for Urban Use Pesticides*, developed in partnership with provincial and territorial governments. A main objective is reducing pesticide use on lawns by applying Integrated Pest Management principles emphasising prevention, reduced risk products, and pesticides application only when necessary.
- West Nile Virus: with federal, provincial and territorial ministries, Manitoba Health established a a comprehensive, co-ordinated, and pro-active *Risk Management Plan* to respond to West Nile Virus.

Legislation and Inter-Governmental Affairs

The Branch co-chaired (with Manitoba Intergovernmental Affairs) a Steering Committee to plan implementation of recommendations of the Consultation on Sustainable Development Implementation (COSDI), a fundamental component of the sustainable development strategy. The Branch initiated major amendments to ***The Environment Act*** as a part of COSDI implementation.

The Branch assisted in planning new directions for Canadian Council of Ministers of Environment.

Other Branches were assisted in developing and amending legislation, such as amendments to ***The Wildlife Act*** to address hunting wildlife in captivity.

Environmental Operations

- 442 *Permits* for manure storage facilities issued since 1994.
- Responsibility for petroleum storage tank installation transferred to Regions.
- ***Foodsafe*** education programs conducted throughout the province.
- An outbreak of scrapie in sheep involved Environment Officers assisting the Canadian Food Inspection Agency in locating a suitable burial site in southeast.
- Household Hazardous Waste collection days attracted 5,818 vehicles and collected 419,060 litres of household hazardous waste.
- Completed Departmental policy on management of construction and demolition waste.
- Introduced *Livestock Manure and Mortalities* brochure in Low German.
- Assisted Canadian Food Inspection Agency to locate suitable burial sites for cattle that died from anthrax in southeast. Worked closely with regional wildlife staff to minimize potential for infection of wildlife.
- Solid Waste Committee established to develop and implement procedures, policies and practices to review and implement recommendations of Regional Waste Management Task Force Report.

Environmental Management

Air Quality Management

- Special air quality monitoring in the oil-producing area continued. Monitoring in Tilston area was completed in June and a report on the activity and findings was released. Monitoring was undertaken at Virden, Pierson, and Waskada. This project will proceed to mid-2001 with monitoring also at Deloraine.

Terrestrial Quality Management

- Sampled soil, blueberry fruit and leaves at 13 sites near Flin Flon to determine if metal concentrations have been elevated by emissions from Hudson Bay Mining and Smelting smelter, and if there is concern for berry-pickers, and wildlife that eat blueberries. Initial examination of data indicates there is no concern about metals in blueberries.
- Completed report, *Vegetation and Soil Monitoring Study in the Vicinity of 8-8 Battery, Tilston Manitoba, 1999*. There was no evidence that emissions from the oil-processing battery had affected vegetation health or soil chemistry.
- Collected species composition, plant biodiversity, and chemistry data at a riparian forest along Assiniboine River. Riparian areas support unique plant communities; data are a needed base for management decisions to ensure sustainability.
- Monitored revegetation success of native versus domestic plant species in revegetation trials on recently-reconstructed dykes along Assiniboine River.

Water Quality Management

- Important water quality studies were undertaken on Lake Winnipeg during both summer and winter, in cooperation with the Lake Winnipeg Research Consortium.
- Technical draft was released for review and comment on *Manitoba Water Quality Standards, Objectives, and Guidelines*. Many revisions were proposed, based on new scientific information and now include protection to surface and ground water, lake and stream bottom sediment quality, fish tissue, and broad ecosystem health.
- Significant work proceeded on Manitoba's Nutrient Management Strategy, development continued on a watershed management plan for Shoal Lake, and an inspection program was implemented at border crossings to ensure that zebra mussels and other aquatic nuisance organisms were not accidentally imported on boats.
- Nearly 60 presentations were made on water quality to groups in Manitoba and elsewhere. In addition, contributions were made to 17 publications such as reports or brochures.

Pollution Prevention

- Prepared *Construction and Demolition (C&D) Waste Disposal Policy and Guidelines* to build on the broad public consultations, policies, regulations and programs developed in the past under ***The Waste Reduction and Prevention Act***. The guidelines will guide local governments, building owners, landowners and demolition and hauling contractors for C&D waste diversion from landfills and prevent illegal dumping.
- Prepared a pollution prevention guide for the automotive sector.
- Assisted Manitoba Golf Superintendents Association to develop a health and safety manual, and with research using replacements for conventional pesticides.
- Assisted development of Canada-wide standards and a *Code of Practice* for the steel sector.
- With Manitoba Transportation and Government Services (Procurement Services), prepared Sustainable Development Procurement Guidelines to move practices in an environmentally sensitive direction. Government will now be required to consider provision of services and implications of purchases through product lifecycles, environmental preference, and sustainability.
- A new Waste Reduction and Pollution Prevention Fund was established, a four-year, $2.2 million support for improved waste reduction, recycling, composting, and regional integrated waste management planning.
- Released ***Regional Waste Management Task Force Report*** and began implementing its recommendations.

Chapter 2

Introduction

Manitoba Conservation protects, conserves, manages, and sustains development of forest, fisheries, wildlife, water, energy, and Crown and Park land resources, protects environmental integrity, and ensures a high level of environmental quality, for present and future generations. Through integrated management of these resources, the Department is the lead agency for providing outdoor recreational opportunities for Manitobans and visitors. The Department is a major contributor to the economic development and wellbeing of the Province, particularly at the community or regional level, through resource-based harvesting operations, and in co-operation with other Departments responsible for agriculture and tourism. Providing for domestic use, and protecting people and property from floods, wildfires and adverse effects of other natural occurrences, are also major roles. The Department administers legislation and regulations protecting the environment and public health, participates in approval, licensing and appeals for industrial development activities, administers waste-reduction and pollution-prevention activities, and monitors environmental quality. The Department also educates Manitobans about benefits and opportunities in energy efficiency and sustainable development of the petroleum industry.

The organization integrated operations of the former Departments of Natural Resources and Environment and the Petroleum and Energy program of the former Department of Energy and Mines, and process that was not completed by year-end. During the course of the year, Petroleum Section was returned to Manitoba Industry, Trade, and Mines. The Department's structure at 31 March 2001 consisted of four Divisions: Regional Operations, Conservation Programs, Environmental Stewardship, and Corporate Services.

Chapter 3

Administration and Finance

Provides executive management of programs and management services, including financial, human resource, computer, and administrative support.

Minister's Salary

The Minister's Salary provides the Minister with additional compensation to which an individual appointed to Executive Council is entitled.

Executive Support

This area comprises support staff in the Offices of the Minister and Deputy Minister of Conservation.

The purpose of Executive Support is to develop, implement and oversee policies and programs which are designed to attain, over the long term, the goals set out in the Department's role and mission statement, advise the Minister on matters relating to the Department, provide policy direction for departmental programs, co-ordinate departmental communications activities and initiatives, and provide administrative support for the Offices of the Minister and Deputy Minister.

Table AS.1
12-1(a) Minister's Salary
12-1(b) Executive Support

Expenditures by Sub-appropriation	Actual 2000/01	Estimate 2000/01		Variance Over/(Under)	Expl. No.
	$	FTE	$		
Total Salaries and Employee Benefits	457.8	9.00	461.5	(3.5)	
Total Other Expenditures	198.3		123.8	74.5	

Administrative Services

The Branch provides financial, human resource, administrative, computer support, warehousing and library services to ensure appropriate utilization of resources and effective delivery of programs, in compliance with policies and procedures.

Financial Services include processing of revenues and expenditures in accordance with legislative, Treasury Board, and Departmental requirements, estimates preparation, accountable advances, expenditure monitoring and reporting, and cashflow forecasting.

Services include annual report preparation, vehicle co-ordination, parking administration, central inventory, delegated financial signing authorities, asset management, employee housing, records management co-ordination, freedom-of-information management, French language services co-ordination, warehousing, and workplace safety and health.

Computer support services include administration, planning, project management, application planning and operational support, management and co-ordination of external resources, and co-ordination of Desktop Management.

The Conservation and Environment Library delivers library and information services to staff of Manitoba Conservation, Environment Canada in Winnipeg, Canadian Council of Ministers of the Environment, and the public.

The focus was on integrating three library collections owned by Conservation. Library staff provide a variety of services in response to over 2,900 requests for from staff and public, co-ordinating interlibrary loans, current awareness services, and periodical subscriptions for staff. 4,900 titles were added to the library's database with assistance of a contract service, and 2,800 publications were distributed.

The Department is continuing with its Records Management Review Program. Records Authority scheduling was completed for Manitoba Water Commission. A complete Departmental review will be undertaken next year. Over 1,600 boxes of inactive files were transferred for storage/disposition to Provincial Records Center/Archives.

65 requests under ***The Freedom of Information and Protection of Privacy Act*** were actioned.

The Department fully complies with legislation in respect of notification, use of personal information, and updating of personal-information banks.

The Department developed and is implementing a new French Language Services Plan to reflect current operations and in keeping with the Chartier Report on French language services. Translation of documents and the web site continues.

Risk Management Program assists staff to identify situations that could disrupt programs or result in unexpected losses, assists evaluating hazards with programs and facilities, and assists developing and priorizing risk control to reduce or eliminate hazards. Liability incidents involved payments of $1,254, and claims for property damages were reported with values totaling $41,515. Total building/property evaluations reported for insurance purposes were $108,261,800.

Equipment Depot is central storage and mobilization point for Resource Branches, Surveys Branch, and Fire Operations Centre. During emergencies such as fire and flood, it becomes logistical support base for all equipment.

Disposition of 744 fleet and departmental vehicles was administered.

Regionalized Workplace Safety and Health/Hearing Conservation programs resulted in 1,145 staff participating in WSH courses and 725 staff screened in the Hearing Conservation Program. Risk Management field inspections of Departmental sites and capital works were carried out and all reported public accidents/incidents were reviewed.

Table AS.2
12-1(c) Administrative Services

Expenditures by Sub-appropriation	Actual 2000/01	Estimate 2000/01		Variance Over/(Under)	Expl. No.
	$	FTE	$		
Total Salaries and Employee Benefits	1,243.4	17.50	1172.1	71.3	
Total Other Expenditures	454.1		450.9	3.2	

Financial Services

The Branch provides financial services to the Executive, program managers and operational staff, undertakes comptrollership, ensures that the public has convenient access to hunting and fishing licenses, and *Park Vehicle Permits*. The Branch co-ordinated departmental implementation of financial, procurement and asset management components of the new *SAP* accounting system.

Licensing Section managed a network of 836 private and 121 departmental License Vendors through which public convenient access was provided for angling, hunting, migratory waterfowl, *Park Vehicle Entry*, trapping, and various other licenses and permits. Total sales were 566,017 licenses and permits, for combined revenue of $10,900,992. Vendor activity included 73 new appointments, 99 discontinuances, 15 suspensions and 21 reinstatements. 777 private vendors are in rural areas.

Where license availability is limited, draws to allocate hunting opportunities for Manitoba residents are conducted. A multi-level priority license draw system was used. Of 11,040 applicants, 6,496 were awarded licences.

Revenue Management Section assisted development of the accounting module for the new Crown Lands Registry System, and implemented a new point-of-sales system at Winnipeg cashier location. The Section processed 16,239 remittances, from 153 revenue sources, totalling $79,499,601. Winnipeg cashier's office made approximately 7,080 direct sales. Some $3,671,495, involving some 7,482 invoice payments, was processed by Bank of Montreal, allowing for prompt deposit of funds and electronic updating of client records. Credit cards were accepted at 40 locations, of which 32 also accept debit cards.

Public Information Line received 65,036 calls. Staff responded to about 62,100 in-person requests for information and assistance, and about 5,400 requests by mail and Internet for publications and resource materials.

Budget Management Section participated in implementation of *SAP* accounting system, developing financial coding, reporting, general ledger implementation, and reconciliation, and advising staff on *SAP* financial transactions. The Section maintained control on expenditures and revenues, enabling the Department to complete the fiscal year within budget and to meet budgetary targets.

Contract Management Section administered over 620 new contracts for construction, consulting, and fee-for-service agreements. The Section advised program managers on contract technicalities, tendering policies, bid opening practices, insurance, and bonding requirements. 80 grants to organizations, totalling $2,511,159, were issued and monitored.

Disbursements Management Section processed approximately 25,000 procurement transactions and 34,500 payments from 48,000 documents. The Section advised and assisted Regions, which have assumed responsibility for certain payment functions in the *SAP* system.

Table AS.3
12-1(d) Financial Services

Expenditures by Sub-appropriation	Actual 2000/01	Estimate 2000/01		Variance Over/(Under)	Expl. No.
	$	FTE	$		
Total Salaries and Employee Benefits	1,738.7	40.33	1,685.4	53.3	
Total Other Expenditures	307.2		415.9	(108.7)	

Human Resource Services

Staffing

- Activity included 23 competitive appointments, 40 direct appointments and 104 term extensions. Guidance and advice was provided on *Departmental Employee* staffing, which has been delegated to managers; there were approximately 430 appointments to Departmental Employee positions. There were 2 selection appeals.
- Assisted developing and implementing the Youth Employment (Green Team) Program, employing approximately 350 youths in rural areas.

Labour/Employee Relations

- Advised management on labour relations, including appropriate discipline, and negotiating settlements to resolve issues before the formal grievance stage. There were 20 formal grievances.
- Participated in contract negotiations with Manitoba Government Employees Union and The Professional Institute of the Public Service of Canada.

Classification

- Activity included 30 position classification reviews, of which one was appealed.

Pay and Benefits

- Processed pay and benefits for about 2,500 staff, which included about 4,800 actions.
- Provided guidance and advice on pay-administration issues.

Organizational Review and Development

- Provided guidance and advice on implementation of new integrated department structure and developed Human Resource Strategy to deal with staff impacted by integration.
- Employees attended 492 training courses conducted by Organization and Staff Development, 61 at educational institutions, and 350 by private vendors.

Employment Equity

- Participated in Aboriginal Public Administration Program.
- Participated in development of Aboriginal Employment Strategy Program.
- Surveyed all employees to update statistics on Employment Equity Representation.

Table AS.4
Employment Equity Representation

Fiscal Year	Total		Male		Female		Aboriginal		Persons w Disability		Visible Minority	
	#	%	#	%	#	%	#	%	#	%	#	%
1999-00	2110	100	1461	69.2	649	30.8	291	13.8	39	1.8	25	1.2
2000-01	2146	100	1471	68.5	675	31.5	316	14.7	40	1.9	23	1.4

Table AS.5
12-1(e) Human Resource Services

Expenditures by Sub-appropriation	Actual 2000/01 $	FTE	Estimate 2000/01 $	Variance Over/(Under)	Expl. No.
Total Salaries and Employee Benefits	764.3	16.00	764.0	(0.3)	
Total Other Expenditures	101.4		105.4	(4.0)	

Resource Information Systems

The Branch provides internal information technology service and expertise, including systems analysis, design, implementation, and management of information technology. The Branch assisted the following:

- Evaluation of Environmental Management System was completed and a contract awarded to LGS Group for implementation. The Branch provided project management and information technology technical support for the project, scheduled for implementation in third quarter 2001-02.
- Manitoba Forestry Silviculture Information System was implemented in Forestry Branch and in 5 Regional offices.
- Implementation of Phase I of an all-encompassing fisheries information system was completed, and a contract awarded for Phase II. Development of Phase II modules was completed; implementation is scheduled for first quarter 2001-02.
- Modifications and enhancements to surface and groundwater data management systems.
- A high-capacity server was implemented to support Geographical Information Systems (GIS) and provide a central working repository for the Department's GIS users.
- Developed a tree-mapping replacement application to support Forestry's Tree Improvement Program. This application applies new technologies to improve data management and data acquisition capabilities.
- Assisted Parks and Natural Areas in securing an Internet-based Campground Reservation System to expand reservation capabilities to include on-line site reservations. This system will be available for public use for 2001-02 camping season.
- Provided continuing support and general maintenance to the Department's application systems and technical infrastructure to ensure reliable and stable operations.

Table AS.6
12-1(f) Resource Information Systems

Expenditures by Sub-appropriation	Actual 2000/01 $	Estimate 2000/01 FTE	Estimate 2000/01 $	Variance Over/(Under)	Expl. No.
Total Salaries and Employee Benefits	867.6	17.00	1,046.0	(178.4)	
Total Other Expenditures	369.0		385.6	(16.6)	

Chapter 4

Regional Operations (Natural Resource Programs)

Regional Operations Division co-ordinates delivery of programs and services at community level, including:

- Field activities for resource management,
- Enforcement of legislation,
- Operation of Provincial Parks, waterways and water control works,
- Emergency response to forest fires, floods and drought,
- Co-ordination of hunter-safety training and guide licensing, and,
- Problem wildlife control.

Programs and activities are delivered in five Regions, divided into 54 Districts.

Headquarters Operations

Headquarters directs and co-ordinates programs, ensuring cost-effective use of resources through operational guidelines, organizational standards and controls, liaison with resource Branches and external agencies, monitoring effectiveness, financial controls, and reporting.

Staff continued to improve relations and information flow with Manitoba Justice, specifically with Magistrates, Crown Counsel, and Constitutional Law Branch. A more proactive role was initiated with complex and Constitutional cases before the courts. Other initiatives included providing a field component for resource program delivery and a new manual on regulatory forms and procedures. 1,469 *Guide Licences* were issued, 20 (1.4%) more than last year.

Annual training and recertification was provided to 127 Natural Resource Officers. Training was held in several locations for cost-effective delivery. 40 Park Patrol officers were given basic training in hospitality, tactical communication, defensive tactics, firearm use, legislation and administrative forms prior to summer assignment. 20 Seasonal officers were given defensive baton training to raise safety levels required for implementation of the new Assistant Resource Officer classification. Other courses delivered included *Park Management*, *Contract Management*, and *Critical Incident Stress Management*. In total, 29 days of training were delivered on 26 subjects to 260 attendees.

The annual Association of Natural Resource Enforcement Trainers Conference was hosted in Winnipeg for 52 national and international delegates.

Tables RO.1 to RO.3 show common violations. Table RO.4 is a 10-year comparison of prosecutions for wildlife, fisheries, Parks, and migratory-bird offences. Table RO.5 shows prosecutions and warnings for all violations.

Table RO.1
Common Violations under *The Provincial Parks Act*, 2000-01

Offence	Prosecutions	Warnings	Total Offences	Evictions
Cause Disturbance	79	154	233	296
Unlawful Vehicle Operation	37	109	146	7
Pet Off Leash/On Beach	7	31	38	1
Have/Leave Unregistered Vehicle	0	37	37	0
Fail to Maintain Campsite	5	3	8	0
Have Liquor When Prohibited	46	14	60	47
Disobey an Officer Or Sign	10	8	18	2
Disobey Conditions of a Permit	0	16	16	0
Possess Fireworks	3	11	14	2
Other	9	15	24	40
Total	**203**	**412**	**615**	**359**

Table RO.2
Common Violations under *The Wildlife Act*, 2000-01

Offence	Prosecutions	Warnings	Total Offences
Loaded Firearm in Vehicle	63	4	67
Hunt on Private Land Without Permission	47	15	62
Hunt or Discharge Firearm From Road	34	2	36
Fail to Tag	34	8	42
Hunt Without Licence	11	0	11
Fail to Wear Orange	14	4	18
Possess Illegally Taken Wildlife	17	4	21
Abandon/Waste Game	24	2	26
Possess Wildlife Without Permit	5	8	13
Use Vehicle Off Designated Route	10	2	12
Other	112	63	175
Total	**371**	**112**	**48,358**

Table RO.3
Common Violations under *Fisheries Act* and *Freshwater Fish Marketing Act* (Canada), and *The Fisheries Act* (Manitoba), 2000-01

Offence	Prosecutions	Warnings	Total Offences
Use Barbed Hook	298	62	360
Exceed Daily or Possession Limit	169	72	141
Possess Unidentifiable Fish	26	29	55
Fish Without Licence	37	51	88
Fail to Carry or Produce Licence	6	36	42
Use Too Many Lines or Hooks	40	8	48
Fish During Closed Time	20	19	39
Violate Condition of Licence	7	30	37
Fail To Remove Fishing Gear	6	12	18
Leave Decayed Fish in Net	10	3	13
Other	91	91	182
Total	**610**	**413**	**1023**

Table RO.4

Comparison of Wildlife, Fisheries, Parks and Migratory Birds Prosecutions, 1990-2001

Fiscal Year	Wildlife	Fisheries*	Parks	Migratory Birds
1990-1991	739	1,033	268	77
1991-1992	816	1,191	226	58
1992-1993	937	1,000	180	20
1993-1994	874	898	253	18
1994-1995	640	1,033	142	85
1995-1996	395	741	185	18
1996-1997	441	976	173	26
1997-1998	421	846	171	9
1998-1999	278	965	248	6
1999-2000	337	833	219	36
2000-2001	371	610	203	8

Includes all Fisheries Acts and Regulations found in Table RO.3

Table RO.5

Record of All Violations, 2000-01

Acts	Prosecutions	% Convicted	Warnings	Total Offences
Boating Restrictions	1	100	1	2
Criminal Code	4	25	0	46
Crown Lands	11	82	38	49
Ecological Reserves	2	100	0	2
Environment	16	34	24	40
Forest	20	75	26	46
Fisheries (Canada	535	91	277	812
Fisheries (Manitoba)	72	94	136	208
Highway Traffic	106	82	149	255
Liquor Control	228	95	19	247
Migratory Birds	43	40	5	48
Off Road Vehicle	49	86	9	58
Provincial Parks	204	89	412	616
Small Vessels	3	66	10	13
Wildfire	12	58	17	29
Wildlife	388	75	113	501
Water Rights	4	0	4	8
Total	1,698	85	1,240	2,938

Total Fines: $201,472.70 and Costs: $54,857.50 for 2000-01

Hunter and Firearm Safety Training Program

Manitoba Wildlife Federation administers and delivers the Hunter and Firearm Safety Training Program. About 250 active instructors graduated 2,079 students.

Since the program began (1964), 134,085 students have been trained (Table RO.6). Table RO.7 shows firearm incident statistics, by five-year average since 1964. Table RO.8 provides statistics on firearm incidents and fatalities over the last 10 years. (*Non-hunting incidents* refer to incidents in the home, children playing with firearms, and the like).

A new ***Manitoba Hunter Education Manual*** was introduced. It has proved to be very popular to both instructors and students.

Table RO.6
Hunter and Firearm Safety Program, 1990-2000

Year	Students	Total to Date	Instructors Certified
1990	2,720	112,086	21
1991	2,543	114,260	26
1992	2,651	116,881	19
1993	2,685	119,566	41
1994	2,256	121,822	45
1995	2,381	124,203	18
1996	2,115	126,318	11
1997	2,101	128,419	8
1998	1,807	130,226	24
1999	2,068	132,006	15
2000	2,079	134,006	5

Table RO.7
Firearm Accidents, 1964-98, 5-Year Averages

1964-68	64
1969-73	56
1974-78	54
1979-83	43
1984-88	26
1989-93	20
1994-98	9

Table RO.8
Firearm Accidents, 1990-2000

	Accidents			Fatalities		
Year	Hunting	Non-Hunting	Total	Hunting	Non-Hunting	Total
1990	12	10	22	0	3	3
1991	10	9	19	1	1	2
1992	12	9	21	1	0	1
1993	5	8	13	0	0	0
1994	4	5	9	1	1	2
1995	9	6	15	0	0	0
1996	6	2	8	1	0	1
1997	2	6	8	0	2	2
1998	4	2	6	1	0	1
1999	6	5	11	3	1	4
2000	3	0	3	0	0	0

Hunter-Killed Livestock Compensation Program

The Program compensates farmers for livestock accidentally shot by hunters. This is done to encourage farmers not to post their land *No Hunting*. Four claims qualified for compensation, for a total of $4,120.00. Table RO.9 lists claims over the last 10 years.

Table RO.9
Hunter-Killed Livestock Compensation Program 1990-91 to 2000-01

Year Paid	Claims	Claims Paid	Total Paid	Average
1990-91	5	3	2,180.00	727
1991-92	7	4	3,241.00	810
1992-93	7	6	8,001.65	1,334
1993-94	3	3	2,570.00	857
1994-95	9	7	11,850.00	1,693
1995-96	3	2	4,265.00	2,132
1996-97	4	4	9,800.00	2,450
1997-98	2	2	2,250.00	1,125
1998-99	7	6	9,532.55	1,589
1999-00	9	6	5,670.00	945
2000-01	7	4	4,120.00	1,030

Problem Wildlife Complaints

Use of pesticides to control predators was curtailed due to licencing problems. 5,018 complaints were received, up 535 from last year.

Table RO.10
Problem Wildlife Occurrences, 2000-01

	Region							
Species	NE	NW	E	C	W	HQ	Species Total	% of Total
Beaver	4	10	54	89	88	58	303	6
Black Bear	145	154	493	323	194	2	1,311	26
Polar Bear	169	0	0	0	0	0	169	3
Big Game	0	3	13	113	571	62	762	15
Wolf	8	7	48	23	93	0	179	4
Migratory Birds	0	19	21	197	224	20	481	10
Other	51	29	264	389	811	269	1,813	36
Total	377	222	893	1,134	1,981	411	5,018	100

Winnipeg District

Due to the large amount of snow, cross-country ski trails at Beaudry Park were in excellent shape and well used. The new Oak Trail, commissioned to accommodate various user groups, was well received. The Moody House at St. Norbert Heritage Park was demolished due to flood damage, and the site was landscaped. The District received a record number of problem wildlife calls, resulting in 421 beavers and racoons being handled, 62% more than last year.

Special Investigations Unit

To provide a more Regional focus regarding specialized investigations and to provide additional investigative support to uniformed staff, the unit was restructured with movement of three positions from Winnipeg to Swan River, Gimli, and Lac du Bonnet. Two members of the Unit were transferred back to uniformed positions and two officers transferred in.

A 2-year undercover investigation into trafficking in bear gall bladders was successfully concluded with fines and costs totaling $24,000 assessed against two residents, highest penalty ever assessed under ***The Wildlife Act***.

Turn-in-Poachers and Report Forest Fires Line

The toll-free telephone service (1-800-782-0076), to combat illegal harvest of fish and wildlife, received 499 calls, resulting in 59 prosecutions and 37 warnings. 69 forest fires were reported.

Table RO.11
T.I.P. Calls by Region, 2000-01

	Number of Calls					Number of Charges			
Region	Fish	Wildlife	Other	Fire	Total	Fish	Wildlife	Other	Total
Headquarters	16	36	0	0	52	0	8	0	8
Central	34	115	3	5	157	6	3	0	9
Western	24	147	3	12	188	2	33	5	40
Eastern	16	81	5	16	118	0	2	0	2
Northwestern	6	6	3	16	31	0	0	0	0
Northeastern	2	0	0	20	22	0	0	0	0
Total	98	387	14	69	568	8	46	5	58

Table RO.12
T.I.P. Calls by Year, 1992-93 to 2000-01

	'92-93	'93-94	'94-95	'95-96	'96-97	'97-98	'98-99	'99-00	'00-01
Calls Received	879	925	974	904	714	640	695	758	568
For Information	116	46	103	91	41	39	24	28	23
Calls Actioned	492	520	500	296	316	302	298	321	204
Prosecutions	131	132	127	156	68	74	74	70	59
Warnings	20	33	22	14	11	16	12	23	37

Table RO.13
12-2(a) Headquarters Operations

Expenditures by Sub-appropriation	Actual 2000/01 $	Estimate 2000/01 FTE	Estimate 2000/01 $	Variance Over/(Under)	Expl. No.
Total Salaries and Employee Benefits	1,408.5	32.73	1,461.0	(52.5)	
Total Other Expenditures	1,043.5		1,245.4	(201.9)	
- Problem Wildlife Control	264.6		245.6	19.0	
Total Other Expenditures	1,308.1		1,491.0	(182.9)	

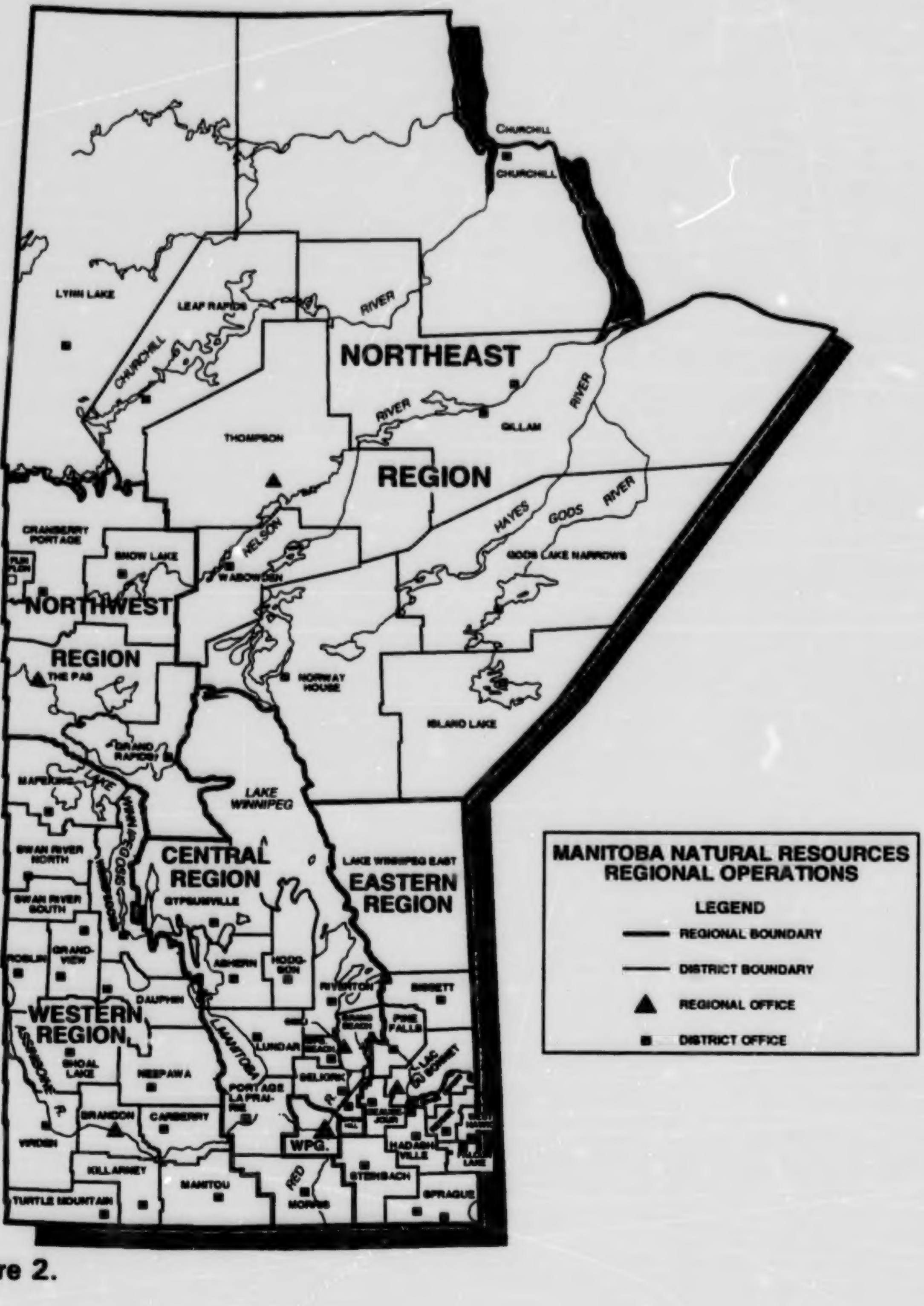

CHURCHILL
CHURCHILL
LYNN LAKE
LEAF RAPIDS
CHURCHILL
RIVER
NORTHEAST
RIVER
GILLAM
RIVER
THOMPSON
REGION
NELSON
HAYES
GODS
RIVER
GODS LAKE NARROWS
CRANBERRY PORTAGE
SNOW LAKE
FLIN FLON
WABOWDEN
NORTHWEST
REGION
THE PAS
NORWAY HOUSE
ISLAND LAKE
GRAND RAPIDS
MAFEKING
LAKE
LAKE WINNIPEG
WINNIPEGOSIS
SWAN RIVER NORTH
CENTRAL REGION
GYPSUMVILLE
LAKE WINNIPEG EAST
EASTERN REGION
SWAN RIVER SOUTH
ROBLIN
GRANDVIEW
ASHERN
HODGSON
RIVERTON
BISSETT
DAUPHIN
WESTERN REGION
LUNDAR
GRAND BEACH
PINE FALLS
ASSINIBOINE
SHOAL LAKE
NEEPAWA
L. MANITOBA
SELKIRK
LAC DU BONNET
PORTAGE LA PRAIRIE
R.
BRANDON
CARBERRY
WPG.
HADASHVILLE
VIRDEN
KILLARNEY
MANITOU
RED
STEINBACH
FALCON LAKE
TURTLE MOUNTAIN
MORRIS
SPRAGUE
MANITOBA NATURAL RESOURCES
REGIONAL OPERATIONS
LEGEND
REGIONAL BOUNDARY
DISTRICT BOUNDARY
REGIONAL OFFICE
DISTRICT OFFICE

Figure 2.

Northwest Region

Regional headquarters at The Pas and five District offices administer and manage natural resources, Park facilities, and infrastructure.

Enforcement

Natural Resource Officer patrols, to ensure compliance with resource legislation, resulted in 217 enforcement actions (105 charges and 112 warnings). Officers responded to 450 *Occurrence Reports*, of which 222 were problem wildlife, 135 regulatory and 93 non-regulatory in nature.

Officers checked 783 licensed hunters, 177 subsistence hunters, 3775 anglers, 1218 commercial fisher nets, and 147 domestic fisher nets. Staff conducted 220 timber inspections on Tolko Industries harvest areas.

Six roadside fish and wildlife check-stations were conducted with 170 vehicles checked and 20 resource violations detected.

Fisheries

Winter commercial production was down 15% from last year. Walleye production increased by 23% while whitefish and pike production dropped by 11 and 35%, respectively. Summer commercial production dropped 13% from last year. Whitefish, walleye and pike all showed declines, of 27, 11, and 11%, respectively. Production of mullets dropped.

Saskatchewan River Sturgeon Management Board meets regularly to direct management studies and education programs, and to developing a management plan to recover stocks. Besides index netting and tagging studies, 22,500 eggs were harvested, cultured, and stocked in Saskatchewan River as fry and fingerlings.

Forestry

Staff reviewed and monitored Tolko Industries' forest management activities in Highrock and Saskatchewan River Forest Sections. Proposed softwood harvest is approximately 665,080 m^3, slightly more than half of Tolko's wood requirement.

Staff also monitored Tolko's forest renewal activities: site-preparing 100.4 ha and planting 476,790 seedlings on harvested areas outside the *Forest Management Licence Agreement*. Staff reviewed about 609.3 ha of *Not Satisfactorily Regenerated* areas and reported regeneration status to Forestry Branch.

Forestry Branch's Growth and Yield Section was assisted with their Forest Productivity program with about 22 plots established and 63 samples completed. Staff began reviewing the Annual Allowable Cut for Forest Management Unit 57, results of which should be available in 2001.

Provincial Parks

Due to increased demand, additional campsites were electrified at Campers Cove (18) and Bakers Narrows (17). A modern washroom was completed at Bakers Narrows, while a shower building at Campers Cove was replaced. The upper suspension bridge at Wekusko Falls, featured on the 2001 *Campground Pass*, was refurbished; the lower bridge will be completed in 2001. The potable water systems at Campers Cove and Bakers Narrows were upgraded to ensure safe drinking water. New Park entry signs were placed at Bakers Narrows and Wekusko Falls.

Water Resources

Pumping to remove excess surface water in the Pasquia Land Project were limited to 289.3 hours, due to below-normal snow levels and minimal spring and summer rains. Operation began 30 March and was completed by 28 April, with minimal pumping in the rest of the season. This year, conditions allowed removal of excess water from Polder 3W; 201.9 hrs. of pumping began 23 May and ended 12 June, affecting 33,280 acres.

Spring seeding operations began earlier than normal. Favourable weather conditions allowed completion by late May. Summer rains were sporadic, but sufficient sub-soil moisture allowed for above-normal grain and forage crops throughout Carrot River Valley. Ideal weather allowed for an earlier and shorter harvest season.

Waterway and dyke maintenance programs included ditching, re-sloping, weed and brush control, mowing, brushing and dike upgrading. About 7 miles of drains were re-sloped and cleaned out. Weed and brush control consisted of 218 acres sprayed, while mowing of drains, dykes, and rights-of-way occurred on about 380 acres.

Construction of the new pump station near The Pas began 19 June, with testing and operation completed by end of November. The station consists of four 48" pumps, of which three are diesel and one electric. Each engine produces 350 hp. and each pump can transfer 55,000 U.S. gallons/minute. Total capacity is 500 cubic feet/second of water. The station removes water from part of Polder 2, all of Polder 3 and 4, from a drainage area of about 120 miles^2.

Final repair and landscaping was completed at Snow Creek Dam at Snow Lake. A clay liner overlaid with geotextile fabric and rock rip-rap was installed on north slope of the inlet channel.

Lake levels continued to drop, with most in the lower end of desirable range.

Wildlife

An inter-provincial cooperative moose management strategy is being developed with Saskatchewan and First Nations for Cumberland Delta and Saskeram Marshes, to rebuild depressed moose populations. Negotiations with industry and government to fund continued woodland caribou research in west central Manitoba were successful. A stakeholder advisory group to guide development of caribou management plans has been initiated, and a nuisance black bear study is being completed. Negotiations continue with First Nations on sustainable harvesting practices as the foundation of cooperative resource management agreements.

Table RO.14
12-2(b) Northwest Region

Expenditures by Sub-appropriation	Actual 2000/01 $	Estimate 2000/01 FTE	Estimate 2000/01 $	Variance Over/(Under)	Expl. No.
Total Salaries and Employee Benefits	2,011.9	42.15	2,011.4	0.5	
Total Other Expenditures	721.4		678.5	42.9	

Northeast Region

With headquarters at Thompson and nine District offices (Churchill, Gillam, Thompson, Wabowden, Lynn Lake, Leaf Rapids, Norway House, Island Lake, and Gods Narrows) the Region administers lands, environment, natural resources, and Parks. Client communities include 21 First Nations, 16 Northern Affairs and five incorporated communities, with a population of about 50,000. To address increased workload in Churchill District, a second Resource Officer position was established.

Support and participation continued on Nelson House Resource Management Board, Split Lake Resource Management Board, York Factory Resource Management Board, Norway House Resource Management Board, Nelson River Sturgeon Co-Management Board, Beverly and Qamanirjuaq Caribou Management Board, and Wapusk National Park Management Board.

Integrated Resource Management Team met regularly to evaluate land and resource-use applications.

A total of 322 *Timber Permits*, 167 *Work Permits*, 111 *Burning Permits* and 51 *General Fishing Permits* were issued.

Enforcement

Officers checked 2,082 anglers, 627 hunters (451 big game, 137 migratory bird, 39 upland game bird), 162 commercial fishermen, and 18 domestic fishermen. Staff inspected timber operations and most remote lodges, outcamps and tent-camp sites, and monitored campers and day-users in Parks, resulting in 100 prosecutions, 124 warnings and 2 evictions.

Fisheries

Commercial fisheries performed well. Most notable difference was Norway House fishery, which had large, high-percentage walleye catches instead of the customary whitefish harvest. This resulted in several requests for quota changes; administrative adjustments are needed to reflect change in this fishery's stocks. This may be a result of increasing abundance of the introduced rainbow smelt. Additional monitoring of stocks will be required.

Northern fishermen participated in two conferences, one sponsored by Southern Chief's Organization and another by Manitoba Metis Federation and Norway House Cree Nation. Both conferences produced working groups to organize commercial fishermen. Concerns about the operation of Freshwater Fish Marketing Corporation (FFMC) continued.

The Island Lake exemption to marketing through FFMC continued, although the three-year trial period ended two years ago. Island Lake exemption is authorized by a *Special Dealers Permit* issued annually by FFMC.

Problems with Setting Lake walleye stocks, revealed by test netting in 1999, lead to development of a recovery strategy. Following consultation with local users and the community of Wabowden, angling was closed at mouth of Fish Creek from March 15 to July 15.

Nelson River Sturgeon Co-Management Board hired a consultant to provide secretariat services, to eventually reduce the Board's dependence on Regional staff for technical and communications services. This was the most successful year ever for raising and stocking sturgeon fingerlings. Enhancing Nelson River sturgeon populations through stocking remains one of the Board's major long-term objectives. Approximately 5,600 fingerlings were stocked with public participation in three locations near Norway House and Cross Lake. A major concern is increased harvest by staff employed to remove debris from Sipiwesk Lake. The Board has approached the First Nation and Hydro, and it is planning a communications strategy to deal with it.

Forestry

A total of 40 *Work Permits* were issued. Site preparation for tree planting comprised 3,008 ha. Tolko and the Department planted 5,524,000 trees.

Community Urban Forestry Tree Plants occurred in Thompson, Leaf Rapids, Nelson House and Churchill.

There are seven active *Timber Sales*. Four hardwood *Timber Sales* produced lumber and fuelwood; three softwood *Timber Sales* produced saw logs, pulpwood, and fuelwood. Among softwood *Timber Sales* is a five-year, 125,000 m^3 *Sale* to Jack Nelson River Corporation in Norway House.

Fire Management

It was a relatively quiet fire season: 133 fires burned slightly over 71,000 ha (some fires in far north were not mapped and not included in area burned).

Losses of merchantable timber in Red Zone were minimized by aggressive suppression efforts. Initial Attack crews contained 28 fires in Red Zone, burning less than 500 ha. of timber. No major losses were reported in areas slated for harvest. Smoke from fires in Island Lake area triggered evacuation of some St. Theresa Point residents.

Several Initial Attack Crews and overhead personnel were lent to British Columbia and Montana in late August pursuant to Canadian Interagency Forest Fire Centre's mutual aid commitments.

Provincial Parks

A major study on the Paint Lake potable water system was completed. Upgrading continued on Paint Lake marina docks and boat-launch. A new equipment storage shed was completed. The landfill was improved and a new active trench for raw garbage was prepared.

Wildlife

Moose were inventoried in Game Hunting Areas 9 and 9A with financial assistance from Nelson House and Norway House First Nations through their Resource Management Boards. First Nation funding was matched by Aboriginal and Northern Affairs as provided under *Northern Flood Agreement Settlement Agreements*.

Polar Bear Alert program operational guidelines were updated. This was a relatively normal year with 59 bears captured in control zone. No serious incidents occurred.

Staff developed and allocated new outfitting areas in consultation with First Nations, communities, and lodges. A new outfitting business by Nelson House First Nation, offering moose and black bear hunts, began operation in fall 2000. The area around Pikwitonei was fully allocated for black bear hunts among 4 residents of the community, with establishment of 3 new outfitting businesses. North Seal River Lodge outfitting areas were consolidated, based on their purchase of a non-operating lodge and licencing of 8 new hunting guides from Brochet.

Electronic tracking of "first come, first served" caribou hunting licence sales was developed and implemented.

Electronic regional trapper lists were developed and implemented. Fur Tables were successful in December in Thompson, with 224 trappers selling $354,670 of fur.

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Lands

Mineral exploration activities regulated by *Work Permits* are at above-average levels this winter. Geophysics and drilling activities for base metals and diamonds are being conducted in a large area, from Lynn Lake to the Gillam, Shamattawa, Gods Lake, and Oxford Lake areas.

Crown land cottage lot sales increased due to notice of intent to re-appraise; lot holders are purchasing to avoid increased prices.

Winter road season completed with some time extensions to accommodate freight hauls. Granville Lake community was added to the Manitoba Transportation and Government Services winter road network, and had limited access this season. 13 remote communities are now served by winter roads.

Wild rice activity, with several exceptions, is marginally economical. Concerns with impact on fish habitat has broadened review to include Fisheries and Oceans Canada, requiring rice growers to do more initial lake studies and project development prior to licencing. This may impact on small-scale growers wanting to enter the industry.

Treaty Land Entitlement process continues; 13 First Nations in *TLE Framework Agreement* are in the Region. Eight have signed *TLE Agreements* and can make land selections. They are entitled to 438,638 acres, and have selected 99,823.02 acres (23%). The other (Island Lake) *TLE Agreement* includes four First Nations and provides entitlement to 100,000 acres, of which 35,155.26 acres were selected, of which 87,272.4 acres were transferred (including Crown land purchase).

Table RO.15

12-2(c) Northeast Region

Expenditures by Sub-appropriation	Actual 2000/01	Estimate 2000/01		Variance Over/(Under)	Expl. No.
	$	FTE	$		
Total Salaries and Employee Benefits	2,087.7	44.38	2,151.3	(63.6)	
Total Other Expenditures	944.4		948.9	(4.5)	

Central Region

Regional headquarters at Gimli and 20 District offices administer and manage natural resources and Parks, encompassing also Lakes Winnipeg and Manitoba.

A total of 105 youths were employed in Green Team Program in Parks and Districts.

Staff assessed 108 applications for *Crown Land Permits*, *Leases*, sales, appeals, exchanges and *Quarry Leases*, 199 requests for *Casual Quarry Permits*, 2 snowmobile trail proposals, 14 Sustainable Development Innovation Fund applications, 34 Licensing Advisory Committee applications, 21 policy and planning reviews, 139 private land subdivision proposals, 218 *Water Rights Licenses*, 12 large livestock operation proposals, two *Annual Operating and Renewal Plans* for timber harvest, 6 forestry *Work Permits*, 45 Operational Land Use Code amendments, 22 *Environment Act License* proposals, and 21 Municipal planning reviews and by-law amendments.

Enforcement

Approximately 2,500 *Occurrence Reports* were received, of which more than 1,100 calls were about problem wildlife, and about 900 required enforcement action. The remainder, about 500 calls, were for fire suppression and other non-enforcement resource management issues.

1,013 enforcement actions resulted in 559 charges, 334 warnings, and 119 evictions from Parks. About 26% of charges were under *The Manitoba Fisheries Regulation*.

Table R0.16 Enforcement Officers' Time, Central Region

Problem Wildlife	**% of Enforcement Time**
Big Game	23.7%
Beaver	21.2%
Black Bear	18.3%
Migratory Birds	15.3%
Other	21.5%
	100%
Regulatory	
Commercial Fisheries	25.1%
Sport Fisheries	6.4%
Big Game	38.0%
Parks	14.0%
Other (water, fires, lands, etc.)	16.5%
	100%

Of Officers' time commitment, about 24% was spent on administration, about 25% on all enforcement, and 43% was spent on resource management, fires and other community services.

Fisheries

Spring commercial fishery opening on Lake Winnipeg was delayed, until testing confirmed that 80% of female pickerel were spawned out. As a result of stakeholder consultations, Lake Manitoba was zoned to reduce harvest of pickerel in smaller-mesh perch nets. A 'pickerel tolerance' of 10% was placed on the perch fishery. Previous fry-stocking on Chitek, Inland, Archies and Crab Lakes again produced a strong pickerel harvest, worth $250,000.

User participation continued. The Lake Manitoba Commercial Fishermen's Association operated experimental index netting, fish tagging, spawning collection, and hatchery projects. This included mobile spawn camps and hatcheries at Lonely Lake Drain and Lynchs Point. Dauphin River fishermen collected pickerel spawn from Warpath River.

Table RO.17 Commercial Fish Harvest, Central Region (kg round weight)

Lake Manitoba	**Pickerel**	**Sauger**	**Perch**
1999-00	311,200	62,820	83,860
2000-01	411,700	27,900	86,460
Lake Winnipeg	**Whitefish**	**Pickerel**	**Sauger**
1999-00	928,864	2,727,955	949,500
2000-01	1,360,000	3,614,500	845,500

Harvest of pickerel, the highest-valued species, was substantially above last year. Production of whitefish increased, and sauger declined slightly, due to a higher percentage of pickerel in the catch. Excellent production and good prices have resulted in a healthy Lake Winnipeg fishery.

Forestry

Timber harvest volumes were down. In the northern part, Tolko Manitoba did not operate in Forest Management Unit (FMU) 45, and Pine Falls Paper reduced amount of spruce pulpwood purchased from quota operators in Interlake Forest Section. This reduced softwood volume harvested. One softwood timber quota was moved from FMU 41 to FMU 45 to enable a longer operating season.

There was increased interest in harvesting poplar due to growing demand for unprocessed poplar in the U.S. Palliser Furniture continued to harvest poplar in Meadow Portage area.

Table RO.18 Timber Harvest Volumes, Central Region (m^3)

	FMU40	FMU 41	FMU 43	FMU 45	TOLKO	PERMITS	TOTAL
Softwood	5625	9750	-	2500	-	1000	18,875
Hardwood	1500	3250	1750	1200	-	1400	9100
Total	7125	13,000	1750	3700	-	2400	27,975

Table RO.19 Forest Renewal Activity, Central Region

Area Renewed (ha)	1997-98	1998-99	1999-00	2000-01
Planted	202.0	460.0	362.9	311.4
Scarified	59.0	25.0	10.5	10.0
Trees planted	565,939	1,219,800	925,400	844,644
***Site prepared (ha)**	356	248	255.3	88.0
Plantation area chemically released (ha)	814	194	0	36.7

* prepared for planting the following year.

219,550 seedling trees were snow-cached for planting in spring 2001.

54 fires were actioned, 3 caused by lightning and 51 human-caused, burning 2,747 ha.

Provincial Parks

Hecla Park Transfer Station and garbage hauling contract was finalised; garbage will be hauled to B.F.I. site.

Folk Festival at Birds Hill Park drew 37,000 patrons, one of the highest attendance figures in the Festival's history.

Beach Safety staff at Birds Hill, Grand Beach and Winnipeg Beach Parks estimate 896,534 people used these beaches. An average day was 9,961. Grand Beach counts for 86.76% of total, Birds Hill for 9.22%, and Winnipeg Beach for 4.02%.

A trout fishing area at Birds Hill Park Lake was completed, as was the draft *Grand Beach Park Management Plan*. A *Moose Management Plan* for Hecla Provincial Park was initiated. 78 special events were hosted in Parks.

Table RO.20 Park Attendance, Central Region

Park	Persons
Camp Morton	60,255
Hnausa	93,744
Birds Hill	812,756
Grand Beach	594,922
Hecla/Grindstone	162,439
St, Malo	259,236
Stephenfield	69,923
St. Ambroise	66,089
Total	2,119,364

Water Management

316 *Water Rights License* applications were received and 529 drainage concerns or complaints were investigated. Municipalities were assisted with water management projects. 77 *Water Right Licenses* issued as were 159 *Letters of Approval* for drain cleanouts. Monthly meetings were held with 9 Water Management Associations to discuss drainage concerns, drainage licensing, and proposed water management projects (Roseau River International, Fisher, Western Interlake, Northeast Interlake, Southeast Interlake, Northeast Agassiz, Southeast, Northwest Red and Plum River).

Provincial Waterways (drains) were maintained and crossings repaired or replaced by staff or tendered contract. Dams were operated to regulate water levels within desirable range. Control structures were operated on La Salle River diversion, Portage Diversion, and Red River Floodway. Refurbishment and upgrading work continued on Red River Floodway inlet control structure and on Red River Valley town dykes.

Provincial waterways damaged by heavy rains in 2000 were repaired at a cost of $400,000.

Wildlife

Manitoba Conservation, in cooperation with Manitoba Hydro, Manitoba Transportation and Government Services, and a local advisory group, installed four tunnels underneath PTH #17, adjacent to the Narcisse snake dens, to reduce snake mortality on the highway. This appears to have reduced snake mortality during fall migration, and three more tunnels are planned for 2001. This project includes snake barrier fencing, traffic speed reduction signs, and increased efforts to improve public awareness of the Red-Sided Garter Snake population at Narcisse.

The Interlake elk herd continues to grow; it is estimated at about 1,300 animals. This provides significant recreational benefits to Manitoba hunters and other groups. Hunting license quotas have been set for 2001-03 that should reduce the herd to the target population of 1,000. Depredation problems increased as the herd grew; staff are reviewing options to limit depredation problems.

The Department and Skownan First Nation co-operated over the past 10 years to establish a herd of free-ranging wood buffalo at Chitek Lake, 50 kilometers north of Skownan. The herd is estimated at 100 animals and is projected to grow to 400 by 2007. Prescribed burns and placement of range salt are routinely undertaken to enhance habitat.

The moose population has declined on Hecla Island over the past 25 years, from a high of about 250 animals, to about 25. Habitat deterioration and predation appear to be among primary factors for decline. Moose are an important component of the Hecla Island ecosystem and the Department initiated a moose recovery project involving removal (by live trapping) of black bears, and habitat enhancement. 12 bears were removed and about 20 hectares of willow were shear-bladed to enhance browse. A prescribed burn of the south end of the island is considered for spring 2001.

The Department constructed an island in Oak Hammock Marsh to attract shorebirds to this internationally-recognized site, possibly including the endangered Piping Plover. Island construction occurred over the past two years and includes establishment of a sand/pebble beach to attract birds such as plovers.

Table RO.21

12-2(d) Central Region

Expenditures by Sub-appropriation	Actual 2000/01 $	Estimate 2000/01 FTE	Estimate 2000/01 $	Variance Over/(Under)	Expl. No.
Total Salaries and Employee Benefits	4,439.1	95.54	4,447.2	(8.1)	
Total Other Expenditures	1,692.0		1,715.2	(23.2)	

Eastern Region

Regional headquarters at Lac du Bonnet and 12 District offices administer and manage natural resources, Parks, and Department infrastructure.

Enforcement

Of 2,301 *Occurrence Reports*, 893 were problem wildlife (54 beaver, 493 bear, 13 big game, 48 wolf, 21 migratory birds, 264 other), 753 were regulatory, and 655 were non-regulatory.

Officers checked 12,034 anglers, resulting in 173 charges and 168 warnings. 3,217 hunters were checked with 41 charges and 29 warnings. 16 decoy operations produced 5 charges. There were 85 charges, 150 warnings and 222 evictions under ***The Provincial Park Act*** and Regulations.

Fisheries

Fish stocks were assessed in Lac du Bonnet, Big Whiteshell, Birse, Manigotagan, Quesnel, Moose and Whitemouth Lakes. Angler catch statistics were monitored on 142 waterbodies. 56 lakes were stocked with 10,800,000 walleye fry, 40,029 walleye fingerlings and 226,228 trout fingerlings (125,000 lake trout, 61,614 rainbow, 30,000 splake, 5,050 brook, 4,564 brown). Over two hundred adult sturgeon were tagged in Winnipeg River, between Slave Falls and Seven Sisters, and eggs were collected during spawning season. Over 100,000 sturgeon fry and 11,000 fingerlings were restocked in Nutimik Lake area and below Seven Sisters hydro dam. A new walleye slot size regulation was implemented and target lakes were identified for evaluation of effectiveness. A lake trout spawning study was conducted on George Lake, Whiteshell Provincial Park. An experimental commercial fishery on small lakes near Little Grand Rapids was initiated with members of Little Grand Rapids First Nation. A fish habitat mapping and assessment research study began on the Pigeon, Leyond and Bloodvein River systems east of Lake Winnipeg. A stakeholder management committee was established to direct and facilitate preservation, enhancement and restoration of valuable fish habitat in Brokenhead River watershed.

Forestry

91 forest fires burned 25,350 hectares. Of these, 21% were human-caused. A major fire in late July east of Berens River burned over 13,000 ha.

Part of the long-term strategic plan of Pine Falls Paper mill (now owned by Tembec Forest Resource Management) is to implement key upgrades to improve cost competitiveness, product quality,and environmental performance. Construction began on a $124 million thermal mechanical pulp (TMP) mill to replace existing outdated groundwood and sulphite pulping. TMP uses heat and mechanical refiners to grind wood fibre into pulp. The plant is expected to be in operation in April 2001. Fibre characteristics of TMP pulp are superior to groundwood or sulphite pulp and will dramatically improve finished newsprint quality. TMP brings several environmental benefits as well: reduced air emissions, improved effluent characteristics, and tree species utilization conforming more closely to the forest.

Provincial Parks

Whiteshell, Nopiming and Atikaki Parks received high numbers of visitors throughout the year. Good snowfall resulted in an excellent snowmobile and cross-country ski season. Falcon Lake Ambulance Service responded to 170 calls, transporting 77 people to hospital.

Camping services and Park facilities upgrading continued with a new campground office at Big Whiteshell Lake, a shower building at Opapiskaw campground, boat launch upgrading throughout Nopiming, granite campground entrance signs, sewage lagoon development at Falcon Lake, and development of a Historic Townsite Interpretative Trail at Pinawa Dam Park. Second phase development was initiated on South Whiteshell Trail, and North Whiteshell trail construction commenced. Both will become part of the TransCanada Trail. Management planning for Atikaki Park continued with preparation of a draft *Plan* for public review.

Wildlife

In a co-operative moose management initiative with First Nations, local wildlife associations, Tembec Forest Resource Management (Pine Falls Paper), and other organizations, the Chief George Barker Co-operative Wildlife Area was established to protect and manage moose in a new forest harvest area near Beaver Creek. Eastern Region Integrated Caribou Management Committee obtained $100,000 in outside funding for advancement of woodland caribou research and management . Initiatives include atellite tracking collars installed on caribou in north part of the Region, and plans for caribou management zones with habitat and access objectives. Efforts to eradicate wild boar in Mars Hills Wildlife Management Area reduced boar sightings and complaints.

Table RO.22
12-2(e) Eastern Region

Expenditures by Sub-appropriation	Actual 2000/01 $	FTE	Estimate 2000/01 $	Variance Over/(Under)	Expl. No.
Total Salaries and Employee Benefits	3,289.7	74.72	3,306.2	(16.5)	
Total Other Expenditures	991.4		1,006.6	(15.2)	

Western Region

Regional headquarters at Brandon, subregional offices at Dauphin and Swan River, water engineering offices at Neepawa and Minitonas, and 15 District offices administer and manage natural resources, Parks and infrastructure.

Enforcement

Resource Officers continued work with livestock producers to mitigate numbers of livestock injured or killed by wildlife.

Resource Officers checked 7,989 big-game hunters, 712 migratory bird hunters, 118 upland game bird hunters, 6,162 recreational anglers, 310 commercial fishers, and 265 domestic fishers. The Region made 437 off-road vehicle checks.

There were 3,327 *Occurrence Reports*, down slightly (123) from last year: 1,756 problem wildlife occurrences, 1,038 regulatory, and 533 non-regulatory.

The Region experienced 19 fires (18 man-caused), four fire investigations and one charge-back of $27,892.00, on the Winkler fire. 78 Emergency Firefighter crewmembers and 20 crew bosses were trained.

Fisheries

Total production in the Lake Winnipegosis summer fishery previously to over one million kilograms, due to strong market for mullets, engendering several spring-run mullet operations around the lake. Mullet fisheries operated in conjunction with walleye spawn camps by fishermen. A local hatchery was also operated by fishermen in the community of Winnipegosis. Spawn-taking and hatchery operation met with some success, but these activities continue to be controversial among fishermen, which must be addressed in future. Walleye production from the open-water fall fishery matched production from the previous summer season at 180,000 kilograms. This remains the highest production since 1991, when the same amount was taken. The walleye fishery remains dependant upon three- and four-year-old fish. This dependence upon a limited number of young-year classes is inconsistent with targets for sustainable fisheries. As noted in *Annual Reports*, effective rehabilitation of the walleye fishery is unlikely until a consensus can be reached with stakeholders on long-term management strategy. Support and participation of First Nations around the lake is essential to planning and implementing such an initiative.

The most significant activity continues to be co-management discussions with West Region Tribal Council (WRTC). A co-management committee with WRTC discussed Treaty spring fishing in tributaries to Dauphin Lake. A *Memorandum of Understanding* was signed, outlining process for developing a joint management plan for Dauphin Lake fishery. Efforts to develop this plan evolved into discussion on broader resource issues. The committee understands that more comprehensive resource-sharing will take a number of years to develop, while issues of the fishery require immediate attention.

Stocking continues to be significant in fisheries management; about 15 million walleye and more than 500,000 trout fingerlings were stocked with financial support from commercial and recreational user groups.

Index netting was completed on Winnipegosis, Dauphin, Lake of the Prairies, Rock, and Pelican Lakes, as was test netting on many smaller waterbodies. This updates the database annually and assists evaluating management activities and effectiveness.

Watershed management continues to be an important tool to address land-use activities that impact resources. Watershed conservation districts are integral to this approach, and staff continue to provide technical advice and assistance to over seven watershed initiatives of varying sizes, which include participation from stakeholders.

Forestry

Forestry Operations coordinate mitigation and regional review for three annual operating plans (AOP) for Forest Management Licence #2 (Tolko), FML #3 (Louisiana-Pacific) and Mountain Quota Holder Association (MQHA). Addition of the third AOP by MQHA increased level of involvement in plan review.

The IRMT subcommittee Swan River issued 110 *Work Permits* for timber harvest and renewal activity on about 176 harvest blocks in Mountain Forest Section.

Key management activities:

- reviewed and provided forestry ranking for proposed Protected Areas;

- drafted forest practices audit proposal;
- participant in developing forest practices guidelines and policy review;
- assessment of whole-tree logging field trial;
- management of forest health issues at planning and operational levels;
- Treaty Land Entitlement liaison with Lands Branch;
- support for tours at Annual Loggers and Haulers Demo;
- initiated code review for Agriculture Crown Land;
- addressed a variety of public concerns and requests for information; and
- participated in annual meetings between FML holders and Forestry Branch.

Timber activities included timber tracking and review of returns, *Timber Permits*, timber valuations for Crown land sales, and assessment of timber damage, review and response to requests for timber allocation. The Department responded to Louisiana-Pacific's reduction in winter wood deliveries. A trend of increased harvest of timber from private land was observed.

Silviculture activities included planting, site preparation, vegetation management (ground, spot), snow cache, continued *Not Satisfactorily Regenerated* review and follow-up treatments, plantation assessments for past two years' planting, implemented MBSIS, DOW Agro training, and started review of silviculture practices for landscape management.

Contracts were completed for planting 358,700 black spruce, 491,500 white spruce and 76,700 jack pine for a total of 926,900 seedlings on 591.2 hectares. Planting areas the following spring after harvest without site preparation has increased. This is an effort to reduce the costs of site preparation and vegetation management activities on potentially competitive sites. Site preparation was completed on 52.0 hectares using a Bracke scarifier, and 165.3 hectares using ripper-toothed plows for a total of 217.3 hectares. In addition, 13.7 hectares of decadent hardwood harvest area were scarified with a ripper-toothed plow as a trial to promote hardwood regeneration. A total of 475,460 seedlings were snow-cached on five sites in late winter to be available for spring 2001 planting.

A tracked carrier, equipped with a broadcast sprayer, was contracted to release 44.7 hectares of softwood and mixed-wood plantations. Ground application of herbicide was chosen to treat selected areas in plantations. A tracked carrier had less impact on sensitive, moist sites and was able to access remote areas only accessible in winter with conventional equipment. Forestry staff, with the help of Water Engineering staff, released 10.2 hectares of mixed-wood plantation using a low-impact Basal Bark spray applied by backpack sprayer.

Review of *Not Satisfactorily Regenerated* lands continued, and follow-up treatments are planned over next two years. This review is expected to be completed next year. Review of renewal records began to ensure that forest-cover types are being balanced on the landscape. Staff participated in launching a new Silviculture Information System, for tracking forest renewal activities and success.

Provincial Parks

Transient and seasonal camping usage remained relatively constant throughout the region. Use of the reservation service was up 11.5%.

Restoration and rehabilitation at Rivers Park was completed after the devastating summer rains of 1999. A new washroom change building was constructed at the beach.

Riverbank stabilization continued at Spruce Woods Park, where the buffer between the river and the campground road was threatened by abnormally long high-water period during spring and summer run-off.

Friends of Spruce Woods continue to work closely with staff at Spruce Woods Park and funded purchase of new heating and air-conditioning system for the Interpretive Centre, and replacement of overhead doors with an energy-efficient window and garden door set.

Construction of a new campground office/gate building for Stephenfield Provincial Park commenced and should be completed next year with the building being moved on site. With this construction, the road entry system was redesigned to make traffic movement easier and safer.

Baldy Mountain cabin was stabilised with new cedar shakes on the roof and the interior floor replaced.

Electrification of Blue Lake was completed, with all washrooms and the campground office having their first season of electrical service.

Work commenced on the Duck Mountain Master Plan, with completion scheduled for 2001.

Water Management

Engineering Section includes staff in Neepawa, Ste. Rose, Dauphin and Minitonas, primarily to operate, maintain, and construct dams and waterways. Support is provided to other Branches, Conservation Districts and Rural Municipalities. A new hoist was installed on Gladstone Dam, and Napinka Dam was converted from a stop-log dam to fixed crest.

Investigations and enforcement of ***The Water Rights Act*** continued until March 2000, at which time Manitoba Court of Appeals (*Hildebrandt vs. Manitoba*) decided that municipalities had jurisdiction over drainage if they passed drainage by-laws. Consequently, ***The Water Rights Act*** was amended to restore provincial powers, proclaimed in August. Due to temporary loss of jurisdiction, fewer complaints and *Drainage Licence* applications were received, and no enforcement action was taken until after August. 35 water rights complaints were received. Five *Ministerial Orders* and one *Emergency Ministerial Order* were issued, and one charge was laid. 28 applications for *Licences* to construct drainage works were received and 14 *Licences* were issued.

Staff continue to participate and, in some cases, facilitate watershed planning, an example of which is the Three Creeks Watershed group.

Wildlife

Students employed in Green Team assisted in monitoring seventh consecutive nesting of peregrine falcons on McKenzie Seeds building (Brandon). Staff conducted spring population surveys of upland birds, owls and amphibians.

Bovine tuberculosis-monitoring program in Riding Mountain National Park and Duck Mountain areas continued in cooperation with Canadian Food Inspection Agency, Department of Agriculture and Food, and Parks Canada. Approximately 500 hunter-shot elk, 200 moose and 170 deer from the Duck Mountain and Riding Mountain areas were examined in winter 2000-2001.

Allocation of non-resident (non-Canadian) deer and black bear hunting licences to outfitters continued in many Game Hunting Areas. Four years after introduction of quotas for non-Canadian deer hunters, outfitters' licence usage was reviewed following hunting season. Several outfitters' quotas were terminated, while numerous outfitters' allocations were reduced.

Staff assisted obtaining for funding under the (Canada) ***Species at Rick Act*** for mixed-grass prairie stewardship. Staff assisted surveying small white lady's-slipper sites near Brandon, cooperative grazing projects on mixed-grass prairie, and attended meetings, field assessments, and breeding-bird surveys. Staff advised and assisted the Mixed-Grass Prairie Stewardship program near Carberry.

The first comprehensive aerial deer survey of Game Hunting Area (GHA) 22 was completed using fixed-wing and rotary aircraft. The population estimate was five deer/square mile, one less than in 1996.

As part of an environmental impact study, Department of National Defence funded a helicopter elk survey of the entire Shilo/Spruce Woods area, covering virtually the same part of GHA 30 that was censused historically. The Department agreed to replicate the survey in five years, as a post-assessment to proposed training expansion on part of Shilo ranges. The detailed survey tallied just over 600 elk (an increase over the past 10 years) but a reduced moose population. The serious moose decline led to cancellation of the long-standing limited hunting season, for 2001.

An Operator Problem Bear Management Project was implemented in Ethelbert area with six outfitters and Manitoba's largest honey farm. Outfitters installed 15 electric fences around bee-yards to reduce nuisance bear killing, thereby increasing numbers available for hunting.

Whitewater Lake Wildlife Management Area continues to attract birding enthusiasts and was designated an *Important Bird Area*. The 100-metre viewing-site boardwalk, destroyed in mid-summer by wind, was salvaged and partly reconstructed.

Major wildlife impact assessments included reviews of about 250 Timber Harvest Blocks identified in Louisiana-Pacific and Mountain Quota Holders Annual Operating Plans. Crown land sale applications and land-use code change requests for agricultural/wildlife purposes were actioned to protect/enhance wildlife values.

Table RO.23

12-2(f) Western Region

Expenditures by Sub-appropriation	Actual 2000/01 $	FTE	Estimate 2000/01 $	Variance Over/(Under)	Expl. No.
Total Salaries and Employee Benefits	4,250.6	94.14	4,252.8	(2.2)	
Total Other Expenditures	1,583.4		1,587.4	(4.0)	

Fire Program

354 fires burned 100,569 hectares, well below the long-term average of 525 starts and 358,425 ha. The spring started with earlier-than-normal fire starts, due to a warm, dry winter, but spring rains reduced the hazard. The most serious fires occurred late in July, resulting in evacuation due to smoke conditions, of residents with respiratory problems from St. Theresa's Point, Wasagomach, and God's River. The other major occurrence was at Wee Lake east of Berens River, at the same time. This fire threatened wood supply of Pine Falls Paper mill and a microwave site controlling communications to the northeast.

2000 Fire Season

Light snowfall in most areas, followed by below-normal precipitation in March and April, created ideal conditions for spring wildfires. Nine fires were actioned and reported in March, burning an estimated 580 ha., one of the earliest starts to the wildfire season. Wildfires continued and the Provincial Fire Center was activated on April 17, along with CL 215 tanker operation at Gimli. A ban on *Burning Permits* came into effect on April 19 in the south, with an increased prevention blitz on local radio stations.

Human-caused wildfire starts in and outside the Burning Permit Area kept Department crews and local fire departments busy on the urban/agro/forest interface. Losses were largely confined to grass vegetation and scrub brush. Drought conditions continued first week of May when precipitation began over most areas. Below-normal temperatures and above-normal rainfall continued until mid-July when a general warmup engendered increased wildfires. By end of June, only 141 fires had been reported, consuming an estimated 13,283 ha. From July 1 to 24, only 30 more wildfires were detected. The next 10 days, from July 25 to August 3, was the busiest of the season, with 101 wildfires reported. July 30 was the peak day with 22 starts. Fires continued to be detected and actioned; by end of season 354 fires had burnt 100,569 ha., well below 10-year average (473 fires, 352,154 ha).

Fire Program uses seven CL-215 waterbombers, three Cessna 310 Bird Dog aircraft and three single engine Otter aircraft, operated by Manitoba Government Air Division. In addition, the Province seasonally contracts one 206 Jet Ranger, one Bell 204 and three Bell 205 helicopters from private operators. Through *Standing Offers*, the Program casually contracts additional helicopters and fixed-wing aircraft as needed.

Over winter of 1999-00, air operations staff worked closely with Manitoba Aerial Applicator Operators to enhance their capability to deliver long-term fire retardant. There is a need, during spring ice breakup, to have an air tanker resource when the ice prevents refilling waterbombers from lakes. Seven aircraft (4 Dromaders and 3 Airtractors) were equipped with a Hatfield gate mechanism and 2 support tanker units were fitted at the expense of the operators. These units were utilized twice, in April out of the Steinbach airport, and in July/August out of Pine Dock on the Wee Lake fire. These aircraft, when deployed, were controlled by a Bird Dog officer and aircraft, and flew 226.8 hours to drop retardant.

Use of chemical suppressants continued. The contractor installed a bulk tanking system at Gimli airport and chemical was trucked from this facility to the support units. This facility was also utilized by Saskatchewan truckers, when in Manitoba. 191,000 kilograms of retardant was purchased along with 14,000 gallons of foam for CL 215 operation.

For the first time, the Province's CL-215 aircraft supported rural fire departments on fires, on two straw-bale fires. The first, on April 25 was started by an arsonist, resulting in death of the plant foreman and charges being laid. We were called out to assist Selkirk Fire Department on a high-rise condominium fire and a hanger fire at our Gimli airtanker base.

On August 1, a provincial fire team was activated and dispatched to the Wee Lake fire. This fire, in a remote location, 30 km. from the nearest town, threatened a microwave link to northeastern communities, and a major Pine Falls Paper cutting area. It presented logistics problems, requiring barging equipment and supplies up Lake Winnipeg, as the nearest airport could not handle large transport aircraft. The operation used nearly 100 drums of jet fuel daily. By August 7, the fire was controlled, contained at 13,875 ha., minimizing losses to the cutting area.

Smoke from no-action fires required evacuation by of 361 people with respiratory problems from the communities of St. Theresa's Point, Waasagomach and God's River.

Manitoba field-tested 2-piece Nomex protective clothing for its Initial Attack (IA) staff. Modular tents were purchased. Plans for fire command trailers were finalized. Headquarters staff, in conjunction with field working groups, updated heavy equipment hiring procedures, developed and deployed liaison kits, and continued to revise fire equipment cache levels.

Fire training concentrated on IA crews. A crew-boss session was held in spring. In cooperation with Transport Canada staff, helicopter safety sessions were held at several IA bases. Most crew members have now received mandatory first-aid training required by Workplace Health and Safety Regulations and most IA staff have been certified to CIFFC national standards.

A fire-prevention radio blitz included a commercial aimed at spring burning and a second at being careful in wooded areas. These commercials were run in spring, in first part of June, and during the fire period at end of July.

We participated with Great Lakes Forest Fire Compact partners in preparing and distributing a placemat.

The Fire Program Website was opened July 31. Information on Internet is automated from National Fire Information System database, with daily weather forecast and fire updates added manually.

Equipment and personnel are shared with other jurisdictions. Minnesota, Saskatchewan, and Quebec provided aircraft for suppression. IA crews were received from Ontario and Saskatchewan. Manitoba assisted Minnesota with a CL-215 waterbomber, British Columbia with pumps, relay tanks and IA crews, and, for the first time, IA crews and fire overhead staff were dispatched to Montana to assist with a record year for forest fires. Indonesia and Mexico were provided with fire experts.

Manitoba, with Canadian Interagency Forest Fire Centre, hosted the First International Fire Equipment Mechanics Meeting (Winnipeg, February).

Above-normal precipitation since end of October has lessened threat of early-spring fire season in 2001. Some dry pockets do exist, however, particularly in The Pas area.

Table RO.24
12-2(g) Fire Program

Expenditures by Sub-appropriation	Actual 2000/01	Estimate 2000/01		Variance Over/(Under)	Expl. No.
	$	FTE	$		
Total Salaries and Employee Benefits	4,431.8	61.69	4,418.3	13.5	
Other Expenditures	7,561.4		7,611.1	(49.7)	

Table RO.25
Number of Fires and Area Burned by Region and Cause

	Northeast		Northwest		Western		Central		Eastern		Province	
CAUSE	# fires	area burned (hectares)	# fires	area burned (hectares)	# fires	area burned (hectares)	# fires	area burned (hectares)	# fires	area burned (hectar	# fires	area burned (hectares)
Recreation	26	79.9	11	7.2	4	3.2	8	4,592.6	12	4,074.7	61	8,757.6
Settlement	4	21.6	2	21.0	5	51.0	10	62.2	15	82.4	36	238.2
Woods Operations	2	1.1	1	0.1					1	1.0	4	2.2
Other Industry					1	24.7			1	0.5	2	25.2
Railroads									10	163.3	10	163.3
Public Projects							1	0.1	1	14.1	2	14.2
Incendiary	22	6,937.7	4	1,050.9	7	72.2	22	177.4	15	1,022.9	70	9,261.1
Miscellaneous	2	361.2	5	8.1			2	1.1	2	1.5	11	371.9
Agricultural			1	20.4	1	22.8	8	279.3	8	1,855.3	18	2,177.8
Lightning	80	73,803.6	30	100.4	1	1.5	3	38.1	26	15,968.7	140	89,912.3
All Causes	136	81,205.1	54	1,208.1	19	175.4	54	5,150.8	91	23,184.4	354	110,923.8

Table RO.26
Number of Fires and Area Burned by Priority Zone and Action Status

	Actioned Fires				No Action Fires				Limited Action Fires				All Fires			
ZONE	# fires	% fires	area burned (hectares)	% of area burned	# fires	% fires	area burned (hectares)	% of area burned	# fires	% fires	area burned (hectares)	% of area burned	# fires	% fires	area burned (hectares)	% of area burned
Red	205	71.7%	26,027.3	92.7%	1	2.0%	1.0	0.0%	2	11.8%	26.4	0.1%	208	58.8%	26,054.7	23.5%
Yellow	2	0.7%	50.1	0.2%	[redacted]	[redacted]	[redacted]	[redacted]	2	11.8%	24.5	0.1%	4	1.1%	74.6	0.1%
Green	74	25.9%	1,960.7	7.0%	17	33.3%	27,907.0	62.0%	5	29.4%	612.8	1.6%	96	27.1%	30,480.5	27.5%
White	5	1.7%	31.4	0.1%	33	64.7%	17,080.1	38.0%	8	47.1%	37,202.5	98.2%	46	13.0%	54,314.0	49.0%
All Zones	286	100.0%	28,069.5	100.0%	51	100.0%	44,988.1	100.0%	17	100.0%	37,866.2	100.0%	354	100.0%	110,923.8	100.0%

Figure 3. **Number of Fires**

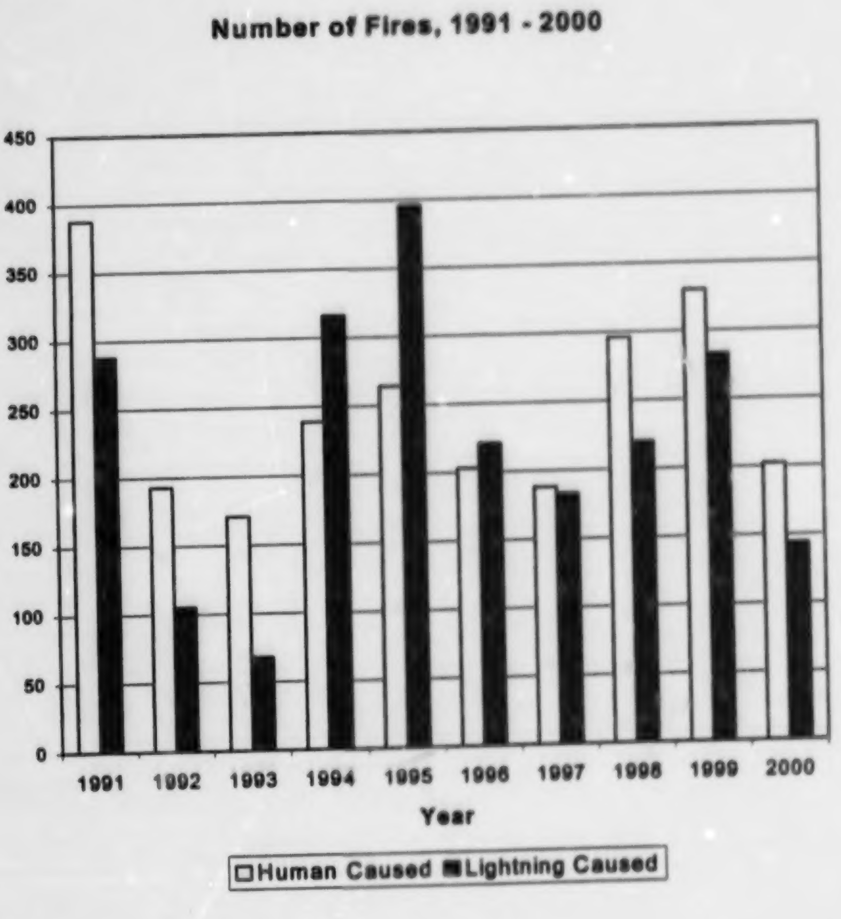
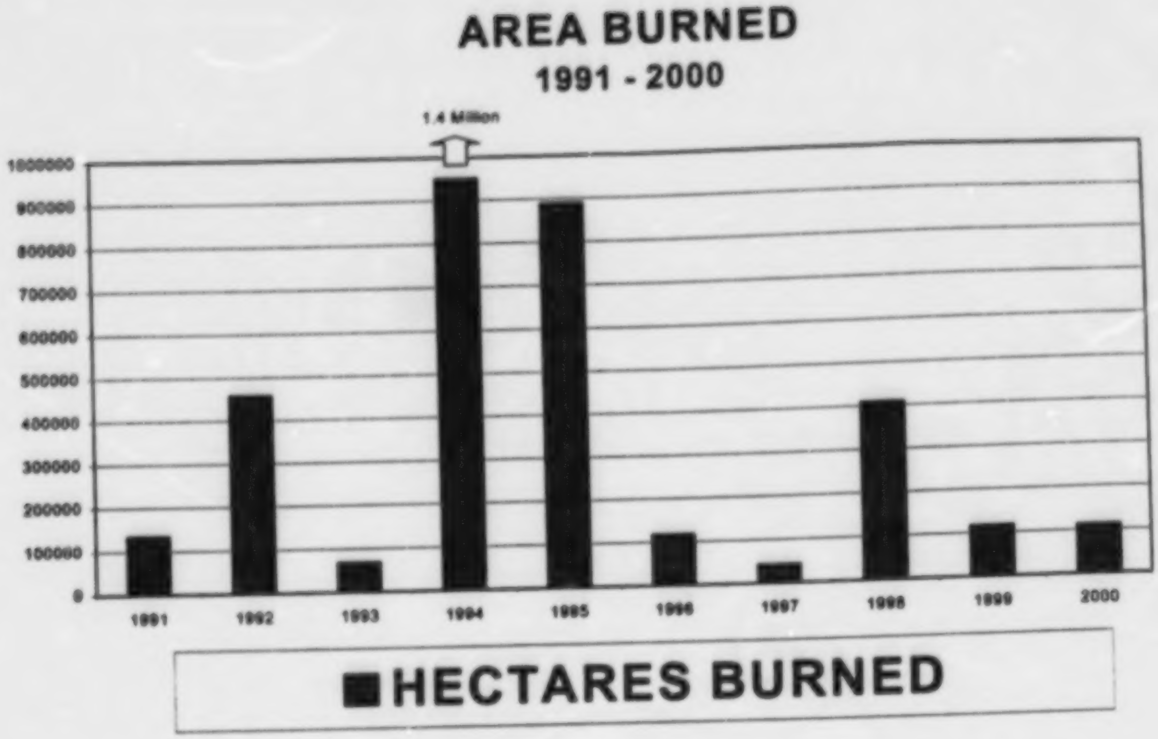


Figure 4. Hectares Burned



Chapter 5

Water Resources

Significant resources were devoted to recovering from the 1997 Red River flood. Water management services arising with high spring runoff potential in 2001, and preparing for future floods, were performed. A pre-commitment study was initiated of two options (expand the Red River Floodway, or, build a flood detention structure south of Ste. Agathe) to increase flood protection for Winnipeg.

Integrated resource planning for sustainable development in several watersheds and aquifer areas continued with stakeholders. Preparation of a strategy to expedite this work was initiated.

Examination of management issues continued toward comprehensive water legislation, improvement of water use licensing procedures, and interim changes to ***The Water Rights Act***. Changes to clarify provincial jurisdiction and authority over drainage under the *Act* were enacted.

Legislation was prepared and enacted to prohibit transfer of water between basins and/or bulk water removal from basins: ***The Water Resources Conservation and Protection and Consequential Amendments Act***.

The Branch's Internet website was re-designed to be more comprehensive and user-friendly.

Administration

Administration staff ensures sustainable development, allocation, and conservation of water resources by maintaining adherence to policy and procedures, control of funds, contract negotiation, and monitoring efficiency and effectiveness of expenditures.

Table WA.1
12-3(a)-1 Administration

Expenditures by Sub-appropriation	Actual 2000/01 $	Estimate 2000/01 FTE	Estimate 2000/01 $	Variance Over/(Under)	Expl. No.
Total Salaries and Employee Benefits	265.6	6.00	251.4	14.2	
Other Expenditures	1,631.8		771.7	860.1	
- Grants/Transfer Payments	0.0		25.0	(25.0)	
Total Other Expenditures	1,631.8		796.7	835.1	

Water Licensing

The section contributes to sustainable development of resources by licensing and enforcing water use and water power projects.

Water Use Regulation

Water allocation plans were implemented for Winkler, Assiniboine Delta, and Oak Lake Aquifers. Development of water allocation plans for Assiniboine River, Whitemud River and tributaries, Boyne River, and south-central Manitoba (Agassiz Irrigation Association area) continued. Administrative policies and procedures concerning licensing under ***The Water Rights Act*** were developed and/or clarified. A "use it or lose it" policy, as provided in the *Act*, was implemented to address licensing backlog. The *Act* and policy provide for amendment or cancellation of licences if works are not constructed, or if use is not in the amounts or for the purpose, as specified in the *Licence*. Contacting applicants for licences, to determine their project's status, allowed 86 files to be closed. Four additional staff were hired (three-year term) to gather information from applicants and to review licensing files, also to reduce backlog. With Surface Water Section, a computerized water budget model was developed which assisted allocation planning and licencing. Fees were assessed and collected for industrial water use.

Table WA.2
Water Use Regulation

***Licence* Applications Received**	**Surface Water**	**Groundwater**
For renewal of *Licence*	6	3
For new *Licence*	56	83
Total, applications received	62	86
***Licences* Issued, by Type**	**Surface Water**	**Groundwater**
Domestic	1	1
Municipal	0	2
Agricultural	0	15
Industrial (including mining)	0	0
Irrigation	0	12
Other purposes	2	2
Total, *Licences* issued	3	32
Other Licensing Activities Completed	**Surface Water**	**Groundwater**
Application (project) assessment completed	67	60
Development/Exploration Permit issued	16	5
Authorization for Temporary Water Use issued	5	9
Licences/applications reviewed and file closed	86	27
Total, other licensing activities completed	174	101
Telephone Inquires Concerning Program Activities	**Surface Water**	**Groundwater**
Telephone inquiries concerning program activities	1800	1400

Water Use Revenue	
Licence (application) fees	$740.00
Industrial water use charges	$295,408.12
Total	$302,808.12

Water Power Regulation and Crown Land Development Review

Recommendations were made on 100 proposed use and development applications for Crown land in Water Power Licence Areas and Water Power Reserves.

Table WA.3
Water Power Revenue

Utility	Land Rentals	Water Power Rentals	Kilowatt-Hours Production
Manitoba Hydro	$703,712.64	$50,800,000.00	30,700,000,000
Winnipeg Hydro	$23,985.98	$1,800,000.00	1,100,000,000
TOTAL	$727,698.62	$52,600,000.00	31,800,000,000

Table WA.4
12-3(a)-2 Water Licensing

Expenditures by Sub-appropriation	Actual 2000/01	Estimate 2000/01		Variance Over/(Under)	Expl. No.
	$	FTE	$		
Total Salaries and Employee Benefits	660.6	16.00	659.3	1.3	
Total Other Expenditures	32.3		45.8	(13.5)	

Water Planning and Development

The Section plans, manages and communicates about water-related developments, activities and strategies; reviews and develops legislation, policy, programming and service delivery; and reviews and assesses development proposals regarding water impacts.

Co-ordination and co-operation respecting water management projects, studies, agreements and issues is maintained with other jurisdictions, agencies and boards. These include International Joint Commission, International Red River Board, International Souris River Board, Red River Basin Board, Red River Water Resources Council, Red River Basin Institute, Pembina River Basin Advisory Board, Prairie Provinces Water Board, Lake of the Woods Control Board, Prairie Farm Rehabilitation Administration, Saskatchewan Water Corporation, Saskatchewan Agriculture and Food, Saskatchewan Environmental Resource Management, Ducks Unlimited Canada, Cree Nation Tribal Health Council, and North Dakota State Water Commission.

Water Planning and Communication

Planning and communication services ensures that developments are sustainable, resource interests are protected and resource impacts are minimized. Public and clients are informed about issues, programs, activities, developments and proposals. The Branch's website is used extensively to facilitate communication with clients about management planning services and products.

Investigations are undertaken, reports prepared, and presentations made to enhance awareness and to respond to concerns. Stakeholder-supported basin, watershed and aquifer management planning continued.

A guidelines document, describing the procedure for undertaking watershed planning and management for sustainable, integrated resource management and development, was initiated.

Branch Website

The website was completely re-designed and expanded to become substantially more comprehensive and user-friendly. The site disseminated flood forecasts, water level and flow information during spring runoff, and information about water management issues. Linkages enabled clients to readily access and download data, maps and reports, and to connect to resources offered by associated water management agencies and groups.

Upper Assiniboine River Basin Study

Saskatchewan, Manitoba and Canada approved extension to December. The drainage moratorium ended 30 June. Interim guidelines, for approving land drainage applications, were developed, based on study findings.

Watershed Committee members reviewed the draft report. The final report was published and distributed. Open houses provided a public opportunity to discuss the study's findings and recommendations.

Final report recommendations deal with watershed management, best management practices, water policy, legislation and enforcement, education and demonstration, research and studies, monitoring and assessment, and incentive programs.

From Manitoba's perspective, important findings include need to further review the regulatory framework for drainage in Saskatchewan, to protect Manitobans' interests, and that drainage projects should be undertaken only on the basis of an integrated watershed plan.

Pembina River Basin Management Plan

For this international basin, a draft framework plan was completed and distributed for public review. With broad stakeholder participation, vision statements, goals, and objectives were identified. Several workgroups were established that identified issues and concerns, specific goals, and initiatives and pilot projects. A survey to obtain public reaction to the goals, initiatives and pilot projects, and opinion on the plan, was included in the distributed draft.

Winkler Aquifer Management Plan

Planning assistance was provided to Winkler Aquifer Management Advisory Board to facilitate initiative implementation by its five action groups. Several funding sources were identified to support promoting awareness and sustainability.

Oak Lake Aquifer Management Plan

A Management Advisory Board was established. Planning assistance was provided to facilitate initiative implementation by the Board's four action groups. Funding sources were explored to support promoting awareness and sustainability. Liaison was established with the Planning District to encourage bylaws to protect the aquifer.

Swan Lake Basin Management Plan

A stakeholder-based planning process was initiated for a management plan for Manitoba and Saskatchewan parts of this basin. A Technical Advisory Group was formed and preparation of a background report began.

Assiniboine Delta Aquifer Management Plan

Planning resumed toward a stakeholder-supported, consensus process to prepare and implement a management plan to guide development and ensure protection. Issues were identified and proposed planning actions were outlined. A proposed, multi-year schedule was prepared.

Legislation and Policy

Legislation, policies, programs, strategies and directives are reviewed to ensure sustainable development.

Water Strategy

A provincial water strategy was proposed and approved by Cabinet. A public discussion document was initiated with:

- a vision statement, outlining importance of water to Manitobans
- a summary of water issues and progress/status on:
  - *Applying Manitoba's Water Policies* on water quality, conservation, use/allocation, supply, flooding, and drainage,
  - Red River Valley flooding and mitigation, including implementation of International Joint Commission and Manitoba Water Commission recommendations,
  - Consultation on Sustainable Development Implementation (COSDI),
  - Integrated resource planning on basin/watershed basis,
  - Land drainage review and financial implications,
  - Water use and allocation review - supply, licensing, pricing and legislation,
  - Drinking water review,
  - Revised water quality objectives, standards and guidelines,
  - Nutrient management strategy,
  - Livestock production impacts review.

An implementation strategy incorporating these issues was proposed to include a legislation review, framework for basin/watershed planning, locally-driven water management based on basin and/or watershed boundaries, and a review of management funding arrangements.

Water Control Infrastructure

Waterways, crossings, water control structures, dams, dikes, drainage channels and major flood control works are managed and monitored. Inspection and assessment services are provided to maintain safety and function and to identify refurbishment and upgrading requirements. Proposals that could affect this infrastructure's integrity are investigated and authorization permits outlining terms for continued safe and effective control are issued.

Drainage and Litigation

Land drainage licensing include investigation, compliance, enforcement and resolution of complaints. Contracts for upgrading and rehabilitating agricultural drainage systems were co-ordinated and supervised.

Water Diversion Works Regulation

Technical advice was provided to *Licence* applicants to protect public interest and affected people or resources, particularly in respect of works that crossed or affected adjacent properties where capacity of the owner, usually the Municipality, was required.

In evaluating drainage project applications, consideration was given to impacts on water resources, wildlife, fisheries, agricultural land base, public and private property, receiving drainage works, natural waterways and water bodies. 440 applications for drainage licences were received, 12 *Ministerial Orders* were prepared and 70 *Drainage Licences* issued.

Water Resource Projects

The ***Annual Report of the Dyking Commissioner*** was prepared.

Data Management

A database of provincially-owned infrastructure detail including maps, plans, field/survey information, and microfiches is maintained. Requests for loans or reproduction were filled and specialized equipment and supplies maintained.

Assiniboine River Dykes Rehabilitation

Refurbishment was completed at four of the remaining five sites during the fall/winter at a cost of about $500,000.

Red River Floodway Rehabilitation

Refurbishment began of the inlet control structure's west gate, below the waterline.

Table WA.5
Development Review of Water Impacts

Water Impact Reviews	1997-98	1998-99	1999-00	2000-01
Proposals for subdivisions, municipal development plans and zoning by-laws	272	157	515	560
Designated Flood Area Permits	449	400	239	180
IDG circulars, including Environment Act proposals and Sustainable Development Innovation Fund applications	170	72	52	120
Crown land sales, and Lease and Permit applications	125	197	268	240

Table WA.6
12-3(a)-3 Water Planning and Development

Expenditures by Sub-appropriation	Actual 2000/01 $	Estimate 2000/01 FTE	Estimate 2000/01 $	Variance Over/(Under)	Expl. No.
Total Salaries and Employee Benefits	975.0	17.00	1,024.4	(49.4)	
Total Other Expenditures	103.5		87.9	15.6	

Surface Water Management

Level and streamflow forecasts and reports on hydrologic conditions of rivers, lakes and reservoirs are provided, with emphasis on operation of control works and flood protection. Planning and engineering studies are undertaken for water use analysis, allocation, public information and multi-disciplinary resource management. Operation of dams is co-ordinated for water supply, conservation, flood control, fish and wildlife habitat and recreation. Specialized hydrologic analyses, advice and information is also provided.

Hydrologic Forecasting and Reporting

Heavy June and July rainfall caused large rises on Red River and its tributaries. Daily water level, flow condition and forecast reports were prepared for these streams in June and July and distributed to government, municipalities, and emergency management agencies. News releases were also prepared.

Record high rainfall in early November caused in extensive flooding on eastern tributaries of Red River, especially Roseau and Rat Rivers. Record high autumn and early winter levels were recorded on Red River and most of its eastern tributaries. Daily flood sheets for Red River and its eastern tributaries were prepared and widely distributed in November and December. Unusual freeze-up conditions on Red and Roseau Rivers in December created frazil ice and ice jamming that raised river levels and caused flooding in the village of Stuartburn. Special monitoring and forecasting was provided and news releases issued.

Because of high soil moisture at freeze-up and associated high flood potential in the south, an unusually early flood outlook report was disseminated in late January, followed by updated outlooks in late February and March.

Lake condition and forecast reports were issued monthly from May through December and distributed via e-mail and the Internet, as were weekly river flow reports and charts for about 20 locations along various rivers.

Volume inflow forecasts were prepared periodically for Lake Manitoba, Dauphin Lake, Lake of the Prairies, and Pelican Lake for operation of outlets. Volume forecasts were prepared periodically for Red River to support Manitoba Hydro's regulation of Lake Winnipeg.

Hundreds of information requests from the public, consultants and government, mostly by telephone and e-mail, were actioned. Information sought ranged from historical flood information, specialized forecasts for streams and lakes, river conditions for recreation, hydrometeorological analysis, and methodologies in solving water-related problems.

Hydrologic and Hydrometeoriological Analysis

Runoff forecasting relationships for most tributaries of Red and Souris Rivers were updated. Flood routing procedures for Roseau and Pembina Rivers were enhanced. Methodologies for forecasting inflows for Shellmouth Reservoir and Lake Manitoba were computerized to improve efficiency and speed.

Work continued on design of a real-time climatological network under the Canada-Manitoba Agreement, in partnership with Adcon Telemetry and Manitoba's Agrometeorological Centre of Excellence. About 160 stations were installed. The network will provide real-time weather information for a variety of uses, including water management and flood forecasting.

Monthly and storm precipitation maps were plotted and distributed to water managers in and outside government. Estimates of evaporation, design winds, rainfall rates, snowcover, soil moisture, and various meteorological data were provided to government, consultants, schools, and universities as requested.

Hydrologic services provided included provision of design flows at highway crossings, waterway designs, 100-year average water levels for Treaty Land Entitlement requests, water supply analyses for Water Rights Licences, and historic water level and streamflow information and studies.

Sustainable yield of Assiniboine River system was updated based on current *Water Rights Licences*. Water use impact on Assiniboine River flows at Portage were analysed with and without additional withdrawal of 12,300 cubic decametres for irrigation. Water management options for Lake of the Prairies were modeled to determine impact on sustainable yield of Assiniboine River system.

A water balance allocation model for use by Water Rights Licensing Section was developed. Duration curves for various reaches in the Shannon and Buffalo watersheds were prepared for use in the model. Impact of irrigation use on Elgin Reservoir was analyzed.

The hydrology of Rice Lake was examined and results used in raising the existing structure. An estimate of the sustainable yield for Killarney Lake, in conjunction with the proposed straw-to-ethanol plant, was made. Procedures for computing waterway design flows were made more efficient. Procedures to evaluate fish passage capability of watercourse openings were developed.

Surface Water Data Collection

The Branch continued to rely on water-level and streamflow data collected under the *Canada-Manitoba Hydrometric Agreement*, for operating water control works, flood forecasting, water management investigations, and hydrologic studies. Jointly with Canada, 125 discharge and 50 water-level gauging stations were operated. Real-time hourly data was retrieved at 114 sites.

To supplement the federal-provincial network, water levels were monitored at 117 gauging sites. At two sites, daily streamflow data was obtained. Number of federally and provincially operated hydrometric stations is shown below.

Table WA.7
Hydrometric Station Operation

	1994-95	1995-96	1996-97	1997-98	1998-99	1999-00	2000-01
Federal-Provincial stations	281	227	227	174	179	179	185
Provincial stations	116	123	123	135	129	126	117

Data for 62 provincial stations was forwarded to Environment Canada's database. Provincial and federal data were added to Manitoba's database.

Water Supply Management, Structure Operation and Allocation Planning

Reservoir levels and spring inflows were monitored to assess flooding and potential supply problems. Inspections were conducted at dams and reservoirs to evaluate performance and concerns were investigated. Stakeholder-supported operating plans and plans for supply for municipal and industrial uses were carried out. Surface water supplies were sustainably managed through regional or provincial plans, strategies and policies. Municipal use data was obtained and usage at about 100 communities was updated.

Reservoir Regulation

All major reservoirs filled to target levels by late May. Lake of the Prairies peaked at 428.43 m in mid-July and receded to summer target by mid-September. Lake Manitoba peaked at 247.48 m in mid-July and remained within its range of regulation through summer. Dauphin Lake peaked in mid-August at 260.60 m, 0.06 m above summer target level. Brereton Lake peaked at 316.34 m in mid-June, 0.32 m above target. Falcon Lake peaked at 325.13 m in late June due to spring runoff and again at 325.14 m in early September due to rainfall, 0.46 m and 0.47m respectively above summer target level. West Hawk Lake peaked at 333.05 m in late June, 0.51 m above its summer target level.

Flood Damage Reduction

Red River Floodway and Portage Diversion have been operated in over 60% of the years since completion but neither structure was operated in spring 2000, due to low runoff flows.

Technical input and supervision was provided to Canadian Hydraulic Centre's study of effect of wind and wave uprush on floodwater levels in Red River valley. Similar input and supervision was provided to an engineering consultant's study of the cost, benefit, and impact of removal of part of Red River Floodway's east embankment east of St. Mary's Road.

The MIKE-11 hydrodynamic model, produced for International Joint Commission by Klohn-Crippen Consultants Ltd. and handed over to the Province, was used to estimate flows and water levels. Modelling was undertaken on lower Pembina River valley to assist North Dakota State Water Commission to analyse some dykes along Pembina River. Modelling was also undertaken with a consultant's study of improved flood protection for Winnipeg; work estimated water levels with an expanded Red River Floodway and with a detention structure near Ste. Agathe. Modelling assessed hydraulic impact of individual and community flood control works in Red River valley.

Table WA.8
12-3(a)-4 Surface Water Management

Expenditures by Sub-appropriation	Actual 2000/01 $	Estimate 2000/01 FTE	Estimate 2000/01 $	Variance Over/(Under)	Expl. No.
Total Salaries and Employee Benefits	678.3	14.0	785.7	(107.4)	
Other Expenditures	209.2		493.6	(284.4)	
- Canada-Manitoba Agreement for Water Quantity Surveys	447.5		447.5	0.0	
Total Other Expenditures	656.7		941.1	(284.4)	

Groundwater Management

The Section's activities enhance ability to monitor and manage provincial groundwater resources in a sustainable manner. Major activities include administration of ***The Ground Water and Water Well Act***; collection and storage of information on occurrence of aquifers, quality of groundwater in them, and their sustainable yields; and compilation of this information in the form of maps, reports and raw data. Principally, the Section conducts extensive studies of rural groundwater quality and investigates potential impacts of agricultural activities on groundwater quality.

Aquifer Administration

A major activity was planning and evaluation of operational and potential programs to improve aquifer management. Liaison with licensed water well contractors, an essential activity, was maintained as required and at bi-annual meetings of Manitoba Water Well Association.

Issues of groundwater management at inter-provincial boundaries were addressed in participation on Prairie Provinces Water Board Committee on Groundwater. The Committee is assembling a discussion paper on arsenic in groundwater across the prairies. The Section also worked co-operatively with Geological Survey of Canada and Prairie Farm Rehabilitation Administration regarding prairie-wide water well database development, potential climate change impacts on groundwater, and development of risk mapping under the federal *Hog Environmental Management Strategy*.

Consultation on groundwater quantity and quality issues was provided to other Branches and to Manitoba Transportation and Government Services, and Intergovernmental Affairs. Assistance was also provided to Winnipeg, Selkirk, Brandon, Rural Municipalities, and Conservation Districts. Technical advice was provided to Water Quality Protection Planning Group for *Oak Lake Aquifer Management Plan*. Risks to Oak Lake aquifer were outlined and a draft plan was written.

Aquifer Data

Groundwater levels were monitored in a network of 595 observation wells in major aquifers. Levels were monitored continuously in 435 wells with automatic recorders, while manual readings were collected from the rest. Quality was determined by analyzing about 300 samples. Temperature was monitored in 12 recording and 100 manual observation wells to determine change in background quality or consequences of geothermal energy activities.

The Section maintained a network of 32 rain-gauges and 38 soil-moisture monitoring stations to provide additional information for development of water budgets for several aquifers. Groundwater monitoring data was stored in a computerized database and provided on request to internal and external users. Based on water levels recorded in observation wells, a summary of water levels in major aquifers was prepared quarterly for the *Water Supply Conditions and Outlook* report.

About 1,800 drilling reports were received from licensed water well contractors. Well reports were entered into GWDrill, a digital database containing records for about 92,000 drill logs. A recent output from this database was supplied to drilling contractors, government agencies and consulting engineers on compact disk.

Responses were given for about 1,000 telephone and/or written enquires, including information on specific wells, general groundwater conditions, groundwater levels or chemistry. Groundwater availability appraisals for specific locations were also prepared in response to about 36 requests.

Aquifer Definition

Activities again focused on evaluating impacts on groundwater quality resulting from agriculture, particularly livestock operations. This comprised applied research into seepage beneath confined livestock areas and earthen manure storages, groundwater and subsoil monitoring on study sites where manure is applied as fertilizer, and reviewing and commenting on livestock production proposals. These activities are reported in the *Value Added Livestock Initiative* section.

Other Activities

Cooperation continued with Manitoba Industry, Trade and Mines, Geological Survey of Canada and University of Manitoba on studies of Paleozoic bedrock aquifers in south and central Manitoba. Geological and hydrogeological frameworks for much of southeast and south-central were provided to a Ph.D. student who is conducting a modeling study of fluid and contaminant transport in these aquifers. A paper was published in *Geology* discussing influence of Pleistocene recharge on groundwater flow in the aquifers.

An inter-departmental group was assisted in dealing with elevated barium concentrations in groundwater in part of the southeast. Extensive groundwater quality data on barium was provided by Geological Survey of Canada. Based on this information, maps of barium distribution were prepared and frameworks developed to understand elevated barium concentrations in these areas. In addition, maps and a brief report discussing the distribution of arsenic in groundwater were prepared for the Prairie Provinces Water Board.

Assistance was provided to the public and other government departments on a daily basis, most frequently with evaluations of potential for groundwater quality impacts from proposed landfill sites, earthen manure storages, and municipal lagoons. Assistance with well or water quality problems was also provided. Assistance was provided to other Branches with instances of groundwater or soils contamination. Reviews and comment were provided on about 10 proposals submitted under ***The Environment Act***.

Cooperation continued with Manitoba Agriculture and Food, and Agri-Food Canada on the federal *Hog Environmental Management Strategy* and methods for aquifer sensitivity mapping being considered under this program. A document was drafted, presenting methodology for evaluating sensitivity of sites for large-scale hog operations. The methodology was applied to one test area.

Participation continued on an inter-provincial group coordinating guidelines for large-scale livestock production operations in prairie region. A draft site-assessment document and a final report on a modeling study on contaminant transport beneath earthen manure storages were prepared.

Talks and presentations were given to staff and the public on potential groundwater impacts from hog and cattle operations and results of studies.

Saline Water Wells

A private water well, north of Ile des Chênes, which created a connection between slightly saline water in the deep sandstone aquifer with fresh water in the overlying carbonate rock aquifer, was modified. The lower aquifer was permanently sealed off from the upper aquifer. This should allow for gradual improvement in water quality in the upper aquifer in the area and, in fact, monitoring has shown considerable improvement in a nearby well.

Monitoring continued in vicinity of a second saline well in this area, in which the Branch sealed off the lower portions in 1997. Quality in nearby wells continued very slow improvement.

Aquifer Capacity

Monitoring wells were installed in major aquifers. 19 observation wells were installed in the 3000 square mile Odanah shale aquifer in the west. Seven observation wells were installed in Assiniboine Delta aquifer. An additional observation well was installed on west side of Red River at Lister Rapids to monitor intrusion of water from the river into the carbonate rock aquifer. Four test holes and two observation wells were completed for water supply for an industrial plant southeast of Killarney. Two geothermal observation wells and 14 test holes were drilled into the 5000 square mile Sandilands aquifer system. 34 groundwater samples were obtained and interpreted.

Ten diamond-drilling applications were reviewed for Manitoba Industry, Trade, and Mines. Manitoba Transportation and Transportation Services was assisted to solve major groundwater-related roadbed problems at four sites. A major aspect of this program is management of the limestone aquifer underneath Winnipeg, eastern Red River Basin and Interlake areas. This aquifer provides about twenty percent of the water used in Winnipeg. It also provides all water for Selkirk, Steinbach and numerous other urban and rural areas. Hydrogeological evaluation of irrigation water supply and groundwater impacts continued for Assiniboine Delta Aquifer. Adequacy of water supply from Brandon aquifer for the Simplot Plant was monitored.

Water supply aspects of Winkler and Oak Lake aquifers were reviewed. Over 300 requests for advice or information were responded to. Four presentations were made on aquifer capacity.

Value Added Livestock Initiative

The Initiative has focused on:

- site suitability reviews for intensive livestock production operations,
- studies of groundwater impacts from application of manure as a fertilizer,
- technical expertise to the public and other Branches, and
- public education and awareness on groundwater protection.

Livestock Technical Reviews

The Section participated on all four technical review committees. Hydrogeological aspects of proposals for new or expanded livestock operations were reviewed, and technical expertise on groundwater issues was provided. About 65 detailed evaluations were completed.

Agricultural Effects on Groundwater

Soil and groundwater investigation and monitoring continued at study sites to evaluate potential impacts from long-term application of animal manure as fertilizer. Two additional sites were established, in Somerset area and near Narcisse. The new sites will expand studies to areas where glacial tills overlie fractured bedrock aquifers. Background soil and groundwater samples were taken at new sites, and first application of manure occurred during late summer and fall.

Cooperation began with University of Manitoba Department of Food Science to study microbial transport and persistence in soils and groundwater at a study site overlying a shallow sand aquifer. This will be conducted as a M. Sc. project. Monitoring wells at the site were sampled, quarterly, for microbial analysis. Collection of soil samples for microbial analysis began in late fall. Initial results indicate little persistence of microbes in soils and groundwater. Detailed study will be needed to draw definitive conclusions. A poster illustrating results and interpretations of the study site was presented at Manitoba Soil Science Society winter 2001 meeting.

In cooperation with University of Manitoba Department of Civil and Geological Engineering, studies continued to examine seepage beneath earthen manure storages on clayey materials. Cores were collected in winter beneath six operating or abandoned storages on clays or glacial tills. The cores were sectioned and analyzed for nutrient and salt content. Contaminant profiles will be analyzed with digital models of fluid and contaminant transport as part of a Masters thesis.

Cooperation with Other Branches of Conservation

Technical advice to staff on groundwater protection continued, typically involving evaluation and interpretation of proposals for manure storages, and recommendations based on initial test drilling results. Assistance was also provided on selection of mass mortality burial sites.

Technical input was provided in participating on a committee formulating risk-based assessment for siting of new livestock operations. An assessment protocol neared completion.

Public Education and Awareness

A groundwater display was presented at seven public open houses, in areas where applications had been made for intensive livestock operations, or where livestock sector expansion is expected. Attendance or presentations were made at public meetings on aquifer water quality and protection.

Presentations on groundwater protection and technical review process were made at four workshops for municipal officials in the west. These were day-long events, including discussion of procedures and technical aspects, to assist Councils to understand provincial technical review processes and reports and to make informed decisions.

Information was provided to the public and questions answered, daily, especially on effects on groundwater from livestock operations.

Manitoba Rural Groundwater Quality Initiative

The rural groundwater surveillance program, initiated in 1999, is conducted throughout agricultural regions.

Private Well Sampling Program

About 160 private, rural wells were sampled in Park-West Region, completing province-wide sampling of about 950 private wells in agriculture regions. Samples were collected randomly, about one per 36 square-mile township, and analyzed for routine water chemistry, nutrients and bacteria. Program results, completed between September 1999 and September 2000, showed about 43% of private wells exceeded provincial drinking-water guideline of 0 total coliform/100 ml); 3% of wells tested positive for e-coli bacteria. About 16% of private wells exceeded Canadian drinking water standard of 10 mg/l for nitrate-nitrite.

Private well sampling results were entered into GWDrill database; maps were prepared from this data.

About 10% (95 wells) of previously sampled wells were re-sampled in February and March 2001 to assess changes in bacterial and nitrate concentrations. These were also analyzed for trace metal concentrations. Re-sampling showed significant changes in coliform bacteria counts; coliform bacteria were present in wells where previously absent, but were absent from many wells which previously tested positive. Nitrate results were more consistent over the two sampling periods. Five wells had concentration of a trace metal exceeding provincial guidelines. Residents whose wells were affected were informed of test results.

Sentinel Observation Wells

Sampling of 32 water quality observation (sentinel) wells was completed to determine groundwater quality in aquifers located away from farmyards. Sentinel wells are in Odanah Shale formation, and shallow sand or gravel aquifers in central and south-western regions, where substantial nitrate concentrations were detected in private rural wells in 1999 and 2000. Bacterial and nitrate results suggest groundwater quality is better in aquifers away from farmyard wells.

12 sentinel more wells were constructed in carbonate rock aquifer in Eastern/Interlake regions, in locations related to *Boil Water Advisories* and groundwater pollution hazard areas. All wells were disinfected by shock chlorinating, and have not yet been sampled.

Drinking Water Coordinating Group

Support was provided to a Drinking Water Coordinating Group on water quality issues, relating mainly to communities where *Boil Water Advisories* were issued. Activities completed:

- sampling of 38 private, rural wells near Garson, Tyndall and Balmoral,
- bacterial contamination and groundwater reviews for communities of Garson, Tyndall, Balmoral, Anola, Haywood, Ile des Chênes and East Selkirk,
- presentations at public meetings in Garson and Tyndall.

Other Activities

Park West/Western Region was assisted regarding a salt-affected private well near Virden. The well is near a Manitoba Transportation and Government Services field yard, engendering concern that salt-laden meltwater was entering the local sand aquifer. An electro-magnetic survey was conducted and a report summarizing results and water chemistry was provided. Further assistance was planned.

Environment Act Reviews

Over 50 proposals under ***The Environment Act*** were reviewed and advice provided on groundwater protection aspects, including for pesticide storage and handling areas, and industrial operations.

Table WA.9
12-3(a)-5 Groundwater Management

Expenditures by Sub-appropriation	Actual 2000/01 $	Estimate 2000/01 FTE	Estimate 2000/01 $	Variance Over/(Under)	Expl. No.
Total Salaries and Employee Benefits	802.0	15.00	816.8	(14.8)	
Total Other Expenditures	584.0		617.2	(33.2)	

Waterway Maintenance

Waterway maintenance activities are performed by Regional Engineering and Branch staff, subdivided into three categories: water allocation, flood-damage reduction, and waterway maintenance, including associated labour costs. Regions operate dams to control flows as directed by the Branch, including maintaining the facilities. Flood-damage reduction activities mitigate flood damages and maintenance of applicable structures and equipment to ensure future service. Water maintenance activities maintain provincial waterways and crossings, of value primarily to the agricultural sector. Regional Engineering also performs drainage licensing and enforces ***The Water Rights Act***.

Branch waterway maintenance activities comprise a broad range of issues such as spring snow surveys, litigation, special studies for waterway maintenance, and other water infrastructure projects, including developing provincial standards and monitoring safety of provincial dams. Issues identified by municipalities are addressed by a contingency fund. Cost of providing engineering data to government agencies, the public, and the business sector is also funded under waterway maintenance.

Table WA.10
12-3(a)-6 Waterway Maintenance

Expenditures by Sub-appropriation	Actual 2000/01 $	Estimate 2000/01 FTE	Estimate 2000/01 $	Variance Over/(Under)	Expl. No.
Total Other Expenditures	3,602.3		3,908.7	(306.4)	

Chapter 6

Parks and Natural Areas

The Branch is steward of Provincial Parks and Natural Areas, managing for the long-term benefit of Manitobans and the environment. Provincial Parks preserve unique and representative natural, cultural, and heritage resources, conserve ecosystems, and provide recreational and educational opportunities. The Branch has a prominent role in identification and establishment of other protected and natural areas.

Administration

The Section establishes priorities and guidelines, ensures conformity to Department policies and government goals, and assesses effectiveness of programs and products. It provides administrative support, personnel duties, and monitors fees from Park users, commercial concessions, and leased properties. Work programs are reviewed to ensure that goals are met, and that expenditures conform to estimates, legislation, and Department policies.

Grants were conveyed to International Peace Garden, Manitoba Wildlife Foundation (upkeep and public programs at Fort Whyte Centre for Environmental Education), and Federal-Provincial Parks Council (promotion and management of parks).

Table PA.1

12-3(b)-1 Administration

Expenditures by Sub-appropriation	Actual 2000/01 $	Estimate 2000/01 FTE	Estimate 2000/01 $	Variance Over/(Under)	Expl. No.
Total Salaries and Employee Benefits	356.8	5.0	367.5	(10.7)	
Other Expenditures	443.0		428.2	14.8	
- Grants/Transfer Payments	191.2		191.2	0.0	
Total Other Expenditures	634.2		619.4	14.8	

Planning and Development

The Section prepares land-use plans, policies, and regulations to guide establishment, management, and development of the Provincial Park system, to:

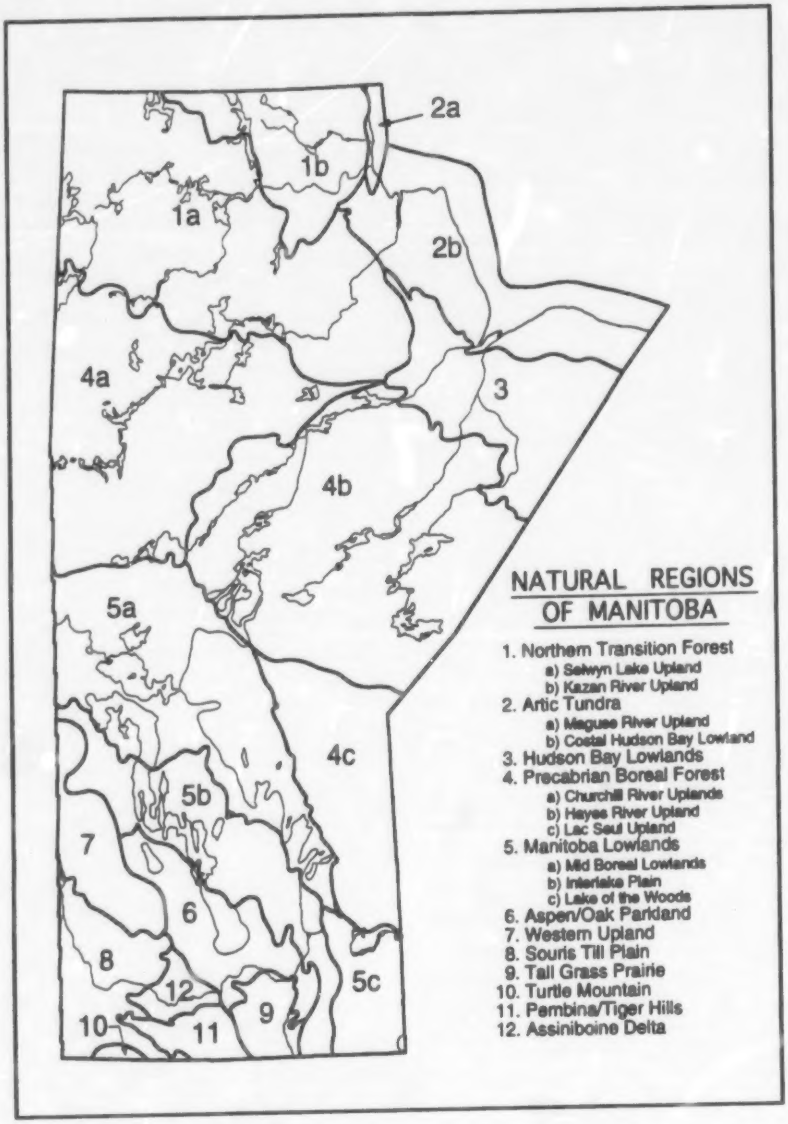
- Conserve ecosystems and maintain biodiversity.
- Preserve unique and representative natural and cultural heritage resources.
- Provide outdoor recreation and education in a natural setting.

The Section guides establishment and management of Ecological Reserves, and leads the Protected Areas Initiative. The Initiative identifies and builds support for protection of lands that are representative of each natural region. The Section manages the Canadian Heritage Rivers program and co-ordinates provincial input to national park establishment initiatives.

Protected Areas Initiative

This Program implements Manitoba's commitment to build a network of protected areas, representative of natural regions, guided by the ***Action Plan for Manitoba's Network of Protected Areas***. By excluding timber harvesting, hydro-electric, mining, and petroleum development, and other activities that significantly and adversely affect habitat, it is understood that biodiversity will be maintained. Areas of special interest have been identified in Natural Regions 1a, 1b, 2a, 2b, 3, 4a, 4b, 4c, 5a, 5b, and 5c. New areas of special interest will be identified for Natural Regions 6, 7, 8, 9, 10, 11 and 12. A geographic information system is used to identify and evaluate potential areas.

Figure 5.



Protected areas can include all or parts of Ecological Reserves, Parks, Wildlife Management Areas (WMAs), and lands held by agencies, organizations, individuals, and Canada.

New Park Reserves were initiated at Birch Island and Fisher Bay (extended for five years) and Hudwin Lake (not extended due to discussion with the affected First Nation). 13 Wildlife Management Areas were protected in whole or part. The ***Action Plan*** was revised and released. A website for Protected Areas Initiative was developed and released. Consultations continue for establishing a National Park in Manitoba Lowlands. Mining and forestry industries, communities, and environmental organizations are consulted in selecting protected areas. The *Memorandum of Understanding* with First Nations organizations is basis for extensive First Nations community-based consultations, and was extended to 2003.

Management Planning

The Provincial Parks Act requires creation of a *Management Plan* for each Provincial Park. Plans are working tools for managers in making decisions on major issues. Public involvement is integral to plan preparation. A strategy for preparation of management plans was initiated.

Planning for Atikaki Provincial Park continued. A draft Plan was prepared and was extensively reviewed in the Department.

Preparation of a Plan for Grand Beach Provincial Park continued. Public drop-ins to review a draft Plan were held, and a final Plan was prepared and reviewed in the Department.

Legislation and Regulations

Park Reserves Designation Regulation enables Crown land to be designated for six months, and renewed for five years, while public consultations clarify such issues as boundaries and management, ultimately determining whether designation as a Park is warranted. The Regulation was amended twice to designate:

- Birch Island, Fisher Bay and Hudwin Lake Park Reserves, for six months; and
- Birch Island and Fisher Bay for five years (Hudwin Lake Park Reserve was allowed to lapse because of First Nation concerns).

Park Activities Regulation regulates activities in Provincial Parks including use of fire, posting signs, vehicle operation, rules for camping, possession and use of firearms, and the like. The Regulation was amended to permit use of a parking ticket that could be left on a vehicle's windshield, as well as to establish a reduced fine schedule for parking-related offences.

Design and Development

This program provides development direction, capital budget management, site planning, and public facility design and mapping. Staff participated in the Watchable Wildlife Working Group with Wildlife and Tourism Development Branches, and in Interdepartmental Recreational Trails Committee.

Major projects included administration of Hecla Historic Lands architectural/landscape guidelines, Hecla harbour studies, Hecla trails expansion, further development at Lyons Lake (with Fish Futures), Spruce Woods Visitor Centre landscaping, several campground expansions for Central and Eastern Regions, West Hawk Lake Fish Hatchery site design and visitor centre landscaping, continued design of the South Whiteshell Trail, design of a visitor kiosk at West Hawk Lake, development of a fishing opportunity at Birds Hill Lake (with the Manitoba Fly Fishers Association), and a variety of plans to guide small redevelopment projects throughout the Parks system. A development strategy for Falcon Lake Waterfront was prepared using private consultants; detailed plans are forthcoming.

Summer and winter Park maps were revised, printed and distributed. A number of campgrounds were field-checked for map accuracy.

Ecological Reserves

Ecological Reserves are established under ***The Ecological Reserves Act*** to protect areas with unique and representative plants, animals, geologic features, natural landscapes, and ecological processes.

The Ecological Reserves Advisory Committee, appointed under the *Act*, met six times to priorize candidate sites and review nomination proposals; eleven sites were recommended to the Minister for designation.

Canadian Heritage Rivers System

This program manages rivers that satisfy the criteria of the System, giving national recognition in order to conserve and interpret outstanding heritage. Current Canadian Heritage Rivers are the Seal and the Bloodvein.

A monitoring report for the Bloodvein River was completed which identified changes that occurred to the natural, cultural, and recreational values for which the river was nominated. The report concluded that the Bloodvein is worthy of continued designation as a river of national significance in the System.

The Hayes River was accepted as a Candidate. Preparations were made to begin a designation document.

National Parks Initiatives

Consultation on establishment of a National Park in Manitoba Lowlands continued with First Nations communities and stakeholders. Community meetings and workshops were held. Discussion with Manitoba Hydro on transmission-line corridors through Long Point area also continue. The project steering committee, comprising federal and provincial departmental executive, met once to discuss progress.

Interpretation

The Interpretation Program offers visitors a deeper understanding and appreciation of natural and cultural resources in Provincial Parks while assisting public understanding of the goals and programs of the Department. Live field programs, complemented by publications, outdoor exhibits, and audio-visual materials, bring visitors in direct contact with Park resources and management.

Delivery of the field program includes a full-time interpreter at Birds Hill, and 21 seasonal (May-September) interpreters at Spruce Woods, Hecla/Grindstone, Birds Hill, Grand Beach, Whiteshell, St. Norbert, Lockport, Paint Lake and Turtle Mountain Provincial Parks. The program expanded to include St. Malo Provincial Park. In addition, 18 Green Team members provided assistance at these Parks. Interpreters contacted 84,865 visitors at field programs and in interpretive centres and museums.

New maps were developed for St. Malo and Kettle Stones Provincial Parks; revised/reprinted maps included St. Norbert Provincial Park and Kennedy House. The new Whiteshell River Self-guiding Trail's brochure was developed with a grant from the estate of Alice Chambers. A new publication and trailhead sign were developed for Old Pinawa Self-guiding Trail. Other revised/reprinted publications included trail guides for Ancient Beach, Isputinaw, and Pine Point self-guiding trails; *Junior Naturalist* and *Park Explorer* booklets for Hecla/Grindstone; and event posters for Whiteshell, Spruce Woods and St. Malo.

Interpretive signage exhibits were developed for a self-guiding trail at Lockport Provincial Park; Baldy Mountain in Duck Mountain Park and prairie trails in Beaudry Park. Endangered species (piping plover) signs were produced for Grand Beach and St. Ambroise Beach. *The Channel* safety/interpretive sign was produced for Grand Beach.

Table PA.2
Numbers of Visitors Contacted by Interpretation (per year)

1991-92 to 1990-01 10-year Average	1996-97 to 1990-01 5-year Average	2000-01
79,523	88,149	84,865

Table PA.3

12-3(b)-2 Planning and Development

Expenditures by Sub-appropriation	Actual 2000/01	Estimate 2000/01		Variance Over/(Under)	Expl. No.
	$	FTE	$		
Total Salaries and Employee Benefits	897.5	17.00	834.1	63.4	
Total Other Expenditures	191.5		194.6	(3.1)	

Park Districts

Park Districts administers the Vacation Home Lot Program, commercial operations, landuse activities, water quality, and sewage and solid waste disposal. An accounting system tracks costs of road maintenance, garbage handling, and water, sewer and other services to lessees, permittees and private landowners. Budgets were developed to determine service fee levels.

Vacation Home Program

The Program administers about 6,000 vacation homes on leased, permitted and private lands in Parks. 317 assignments and 130 collateral security recordings were processed, 369 *Leases* were renewed and new *Leases* issued, and 366 *Permits* issued for cottage construction or structural modification. This program generated $4.7 million in revenue. There were 188 leasehold inspections carried out.

Commercial Operations

This unit manages relations with private-sector operators to ensure high-quality services for visitors. 157 commercial operations provide such services as restaurants, stores, accommodation, golf courses, marinas, and beach concessions. Also, 44 special-consideration organizations conduct educational and religious programs.

Land Use Activities

Permits were issued for commercial fishing, wild rice cultivation, trapline cabin construction, hay and grazing, scientific research, and mineral claim-staking and exploration.

Water Quality Control and Sewage and Solid Waste Disposal Program

In the five-year program, 293 cottage lots were inspected in Barren Lake, Star Lake, Hunt Lake, McKenzie Beach, Crescent Beach, High Rock, and Block 1 at West Hawk Lake, of which 24 were found to be in violation of ***The Environment Act***. Private sewage disposal systems in subdivisions continued to be the major focus. Installation approval was granted for 66 holding tanks, 12 septic tanks and fields, 3 septic tank replacements, and 48 sullage pits.

Table PA.4

12-3(b)-3 Park Districts

Expenditures by Sub-appropriation	Actual 2000/01	Estimate 2000/01		Variance Over/(Under)	Expl. No.
	$	FTE	$		
Total Salaries and Employee Benefits	425.4	11.00	438.3	(12.9)	
Total Other Expenditures	48.0		49.3	(1.3)	

Park Operations and Maintenance

Regional Operations Division operates and maintains Parks to provide high-quality, safe and enjoyable outdoor recreational and educational opportunities, while ensuring compliance with provincial laws.

Table PA.5

12-3(b)-4 Park Operations and Maintenance

Expenditures by Sub-appropriation	Actual 2000/01 $	Estimate 2000/01 FTE	Estimate 2000/01 $	Variance Over/(Under)	Expl. No.
Total Salaries and Employee Benefits	10,118.8	226.25	9,993.4	125.4	
Total Other Expenditures	4,278.8		4,545.5	(266.7)	

Support Services

The section guides and supports Regional Operations in ensuring high-quality outdoor recreational experiences. This includes analysis of operating strategies and procedures, policy review, market research, marketing strategy development, promotion, and statistical compilation and trend evaluation. The program designs, implements, and evaluates new initiatives in campground, day-use, and backcountry management, as well as customer-service training and volunteer activities.

Marketing

Initiatives included developing and implementing a comprehensive promotional strategy with Manitoba Culture, Heritage and Tourism, producing a new brochure for *Group Use*, reprinting ***Manitoba Magic: Provincial Parks Guide***, *Parks Reservation Service*, *Family Vacation Cabins*, and *Fall Camping* brochures, and a full-page advertisement in ***Woodall's North American Campground Directories***. Newspaper advertisements, news releases, and handouts promoted Park programs and initiatives, including opening and closing dates, May long-weekend liquor-free camping, Reservation Service, family vacation cabins, and fall camping. Staff participated in federal and provincial tourism committees and workshops to improve positioning in tourism strategies and promotional campaigns. The section participated in the Minneapolis Northwest Vacation, Mid-Canada Boat, Cottaging and Camping, and RV Shows, to increase awareness of Parks and Park programs.

Camping Programs

About 4,323 campsites (of which 2,658--61.5%--were available for reservation), and 1,500 seasonal campsites, were available. 163,838 transient camping nights and 43,000 seasonal camping nights were sold. About 5.0 million people visited Provincial Parks.

Reservation Service placed more campers onto sites through reservation. Over 28,000 reservations were made, an increase of 3,000 (12%) from last year. Reservations were offered in 49 campgrounds, 15 group use areas and two cabin locations.

New initiatives included:

- Developing a comprehensive waterfront safety strategy including standard signage at Grand Beach, Birds Hill, and Winnipeg Beach Provincial Parks.
- Developing a Manitoba Best Customer Service Refresher training program for frontline staff.
- Expansion of fall camping at certain campgrounds, including services and fee collection.

Table PA.6

12-3(b)-5 Support Services

Expenditures by Sub-appropriation	Actual 2000/01	Estimate 2000/01		Variance Over/(Under)	Expl. No.
	$	FTE	$		
Total Salaries and Employee Benefits	255.1	5.00	234.2	20.9	
Total Other Expenditures	46.5		52.3	(5.8)	

Chapter 7

Energy

During the last quarter of the fiscal year, Petroleum section of Petroleum and Energy Branch was transferred to Manitoba Industry, Trade and Mines.

While the Branch's role has been expanded into diverse activities to develop climate change policies and initiatives, it has retained its primary mandate: promote investment in efficient energy use and development of economically viable alternative energies.

Manitobans spend about $2.8 billion annually (about 10% of Provincial gross domestic product) to heat and light homes, power business, industry and agriculture, and fuel transportation. About 75% of this is met by natural gas and refined petroleum products imported from western Canada. Installed electricity-generating capacity in Manitoba is 5,137 megawatts.

The Branch administers ***The Energy Act*** and promotes investment in efficiency measures and development of viable alternative technologies.

Energy Programs and Policy

The Branch represents Manitoba at the Energy Sector Table, negotiating the *Energy Chapter* to the *National Agreement on Internal Trade*. It also represents Manitoba's energy interests in the national process developing a plan to deal with climate change. In addition to taking a more active role in Public Utilities Board and National Energy Board issues on natural gas, staff provide policy advice and support directly to the Minister responsible for Manitoba Hydro on supply and use of electricity and natural gas. Towards end of the fiscal year, critical electrical (and natural gas supply) shortages in the U.S. and in Alberta resulted in severe price increases. Energy was again in the forefront of U.S., Canadian and Mexican agendas. The Section advised departments responsible for trade (Industry, Trade and Mines), hydro-electric generation (Finance), and national and international relations (Federal/Provincial Relations and Premier's office).

Energy Advisory Service: the Branch operates the *Energy Answers Information Centre,* which responds to inquiries from the public, industry, utilities, and other Departments. Technical staff provided impartial, expert advice and distributed publications on matters ranging from energy efficiency to alternative and renewable energy. Technical experts responded to about 1,000 inquiries. Non-technical staff answered client requests by supplying fact-sheets and booklets. The website was developed further and received 44,696 visits (an increase of 30%).

Home Energy Saver Workshops: at nine workshops, in different locations and attended by 249 people, homeowners received practical advice on retrofitting homes to increase energy efficiency. Since these began (1986), 6,056 people have participated in 330 workshops.

Manitoba R-2000 Home Program: aims to increase energy efficiency and environmental sustainability of new housing to specified levels of performance. Since 1994, the Branch administers this program for Natural Resources Canada, Manitoba Conservation, Manitoba Hydro, Centra Gas and the Construction Association of Rural Manitoba (CARM). Improvement of the Program continued. 42 homes, 1.8% of single detached home starts, were enrolled; the national average was 1%.

R-2000 offered training to industry on energy-efficient, environmentally-responsible design and construction of new housing. Efforts included a two-day Builder Workshop in Winnipeg (32 attended), and one-day Builder Technical Updates in Brandon, Winnipeg and Swan River (27 attended). Participants indicated a high level of satisfaction with content and quality of instructors.

Marketing activities included:

- Open houses in Swan River, and Winnipeg (over 10,000 attended).
- Sponsorship of CARM Information Expo.
- References or feature articles about R-2000 in local and regional newspapers and magazines.
- Co-op magazine and newspaper ads with R-2000 Builders.
- Builder Awards presentation.

A Manitoba-built R-2000 house was recognized at National Energy Efficiency Conference Awards (Ottawa), as being the best R-2000 Home built in Canada. The Blankstein house, built by Ranson Renovations, will use one-third less energy than the R-2000 target for the house and incorporates all market-available environmental and indoor air quality measures. Judged against high-quality nominations from across Canada, this evidences that Manitoba operates a leading R-2000 program.

New Home Workshops: offered on energy-efficient new home construction in all regions; promotion of R-2000 Program is key. Staff provide technical advice on situations where participants want to exceed requirements of the Program. A total of 218 people attended 8 Workshops. Since Workshops began (1993), 1,901 people have attended 88 workshops.

Home Retrofit Booklets: further developed and distributed this widely available (also in French) series, which provides detailed and objective retrofit techniques for the public. The booklets are distributed through lumberyards.

Energy and Environment Calendar: a contest selected artwork to represent Manitoba in the calendar produced by Natural Resources Canada. Entries were submitted by elementary schools; the winner for the 2000 calendar was by Shaine Menzies, age 6, of Shoal Lake School, Shoal Lake. There were 8,000 calendars distributed to schools, libraries and daycare centres.

Public School Outreach Initiative: sent a communication to schools outlining the energy website, free Technical Advisory Service, and renewable and alternative energy and energy efficiency publications available through the Energy Answers Information Centre. This will assist science teachers with lesson plan and science fair planning. 23 schools requested publications immediately and website enquiries were substantial (2,500) for renewable energy information during Science Fair planning months of January and February.

Plan Winnipeg Review: provided input on such topics as energy-efficient transportation opportunities and building and housing options, alternative energy, efficiency in infrastructure planning, recognition of climate change, and final draft of *A Long-Range Policy Plan for City Council.*

Rehabilitation of Inner-City Housing: staff assist on efficiency aspects with the committee developing the workplan for rehabilitation and building of new inner-city neighbourhoods, a joint venture of three levels of government.

Manitoba Building Code: continued assisting construction industry and building officials to apply new, more stringent efficiency requirements for housing.

Model National Energy Code for Buildings: promoted voluntary use for commercial, institutional and industrial projects.

Commercial Building Incentive Program (CBIP): assisted Natural Resources Canada to increase awareness of this Program, which provides incentives for buildings designed to be at least 25% more efficient than the Model National Energy Code. Worked with NRCan, Manitoba Transportation and Government Services and Red River College to have new Princess Street campus designed to CBIP standards.

Minimum Standards for Energy-Using Products: continued with Canada, other provinces, standards organizations, and industry, to co-ordinate development and implementation of performance standards for energy-using products, through participation in Advisory Council on Energy Efficiency.

Fact Sheets: distributed a wide range of publications encouraging efficient use, and increased use of economic alternate technologies and resources. Most significant demand was on natural gas, electricity, photovoltaic systems, wind energy, and solar heating systems. Designed for public use, complex and Manitoba-specific information is presented in an easily-understood format. Due to increased interest from the public, developed a draft of a *Heat Pump Systems in Manitoba* fact sheet. Providing easily understood Manitoba-specific information about a complex heating system, the fact sheet will be available to the public next year.

Energy in Manitoba: this report illustrates historic and projected production and consumption patterns, containing indicators of progress in use efficiency, and in carbon dioxide emissions from consumption. This public document is available on the website or in our *Energy Answers Information Centre*.

Energy Efficiency and Alternative Energy Service Centre: a market research study was completed to determine effectiveness of a Climate Change/Energy Efficiency Service Centre of Excellence. Funded jointly with Environment Canada, the study was contracted to Pele Research and Consulting. Objectives were:

- Inventory existing energy-related information, programs and services,
- Survey customer requirements,
- Review other examples of 'one window' service delivery, and,
- Recommend options for 'one window' service delivery.

Electricity Issues: monitored and provided briefings on Canadian, U.S.A., and European activities in restructuring and deregulation of the industry, and on the U.S. proposal for a North American approach to energy issues.

Sustainable Development Energy Strategy: recognizing significant changes to energy markets (such as deregulation) and environmental imperatives (such as greenhouse gases and climate change) since the Sustainable Development process began, the Branch prepared a policy paper outlining a framework of nine goals; a revised *Applications Document* was prepared. Staff participated in workshops and planning sessions to develop Sustainability Indicators as required under ***The Sustainable Development Act***.

Energy Option in the 21st Century: participated with Manitoba Energy Management Task Force to sponsor and organize this seminar and trade show to introduce new and innovative technologies in energy and building sectors.

Climate Change: Canadian First Ministers tasked Ministers of Energy and Environment to develop and implement a climate change policy. Staff provided input on energy-related interests through participation in Greenhouse Gas Emissions Reduction pilot project and Manitoba Intergovernmental Committee on Climate Change. With creation of Climate Change Branch, staff expanded activities in this area, including secretariat to Environmental Quality/Economic Development Committee of Manitoba Round Table for Sustainable Development, and logistical support for public meetings of Prairie Adaptation Research Collaborative.

Manitoba Climate Change Action Fund: the government announced $1 million over four years to support actions to respond to climate change. The Branch co-ordinated Fund administration, and review and administration of proposals and projects. 41 proposals were received of which 14 were declined and 12 deferred. The Fund contributed $234,84914 to 14 projects with a total value of $994,185.

Manitoba Government Building Initiative: the Branch cooperated with Transportation and Government Services to retrofit two government buildings, Woodsworth Building (Winnipeg, 1997), and Portage Provincial Office Building (Portage la Prairie, 1998). Monitoring found annual savings at Woodsworth Building are $56,000, about the original estimate. Savings at Portage Provincial Office were less than estimated ($27,000), but the building is more comfortable. Utilizing these findings, staff projected significant energy savings and other benefits (greenhouse gas reductions) if retrofit were applied to 113 government buildings identified by Transportation and Government Services.

Crude Oil Revenue Forecast: utilized forecasting tools developed by staff to project average monthly and annual prices for Manitoba crude oil, and to project Provincial revenues.

Ethanol: worked with the Community and Economic Development Committee of Cabinet and others to examine opportunities for increasing ethanol production and market share for fuel ethanol blends. The Branch represents Manitoba on the Ethanol and Biofuels Working Group at the Council of Energy Ministers.

Council of Energy Ministers/Joint Meeting of Ministers of Energy and Environment: provided briefing materials to the Minister. Staff continue to lobby on behalf of Manitoba Hydro's interests as outlined in previous reports. *Renewable Hydroelectricity--A Climate Change Opportunity* and *Climate Change Opportunities--A Focus For Early Actions* outlined opportunities to benefit Manitoba and assist Canada to meet international commitments. Staff are participating in initial planning for hosting the Canadian Energy and Mines Ministers' conference (Winnipeg, 2002).

Cartographic and Computer Generated Marketing Materials: Up to transfer of Petroleum to Industry, Trade and Mines, staff produced materials to support Administration and Geology and Engineering Sections of Petroleum and Energy Branch, including:

- Revised well location maps (1:50,000).
- Updates of pool maps.
- Digitization of 6 stratigraphic maps (started).

Municipality Efficiency Project: represented the Department on Steering and Technical Advisory Committees. Led by the Association of Manitoba Municipalities, this is a practical, results-oriented initiative to improve economic and ecological sustainability of communities. Interested municipalities were provided with tools to increase efficiency, especially in areas of water, wastewater, energy, and equipment. Activities centred on encouraging implementation of recommendations. Other supporters are Environment Canada, PFRA, Manitoba Intergovernmental Affairs, Manitoba Hydro, and Community Places Project of Manitoba Culture, Heritage and Tourism.

Energy Efficiency in Commercial Buildings Student Competition 2000: staff nominated top three teams for the NRCan student competition. One team tied with the winner of this National Award.

Sustainable Development Innovations Fund Projects: Provided the Sustainable Development Coordination Unit with technical review of applications, and administration of funding and technical support for energy-related projects.

The Hybrid Vehicle Demonstration Project began in fall 2000 when two hybrid gasoline-electric vehicles (HEV's) were purchased by the Department to promote economic, energy efficient, alternative technologies. Combining a gasoline-powered internal combustion engine with an electric motor, HEV's are capable of operating more efficiently than conventional vehicles. HEV1 was a pool vehicle for Petroleum and Climate Change Branches. By April 2001, it logged 10,200 kms, consuming 7.0 L/100 kms (40/60 city/hwy). The Deputy Minister and the Climate Change Branch operated HEV2, logging 7,374 kms, consuming 7.4 L/100 kms (90/100 city/hwy).

Both HEV's performed well through the first winter. With warmer weather ahead, the average fuel consumption is expected to drop. Initial estimates show that the Prius hybrid appears to consume at least 30% less fuel than an equivalent conventional gasoline vehicle. No major mechanical problems have been experienced with either of the HEV's.

Manitoba Conservation Vehicle Replacement: Energy Branch has worked with Fleet Vehicles Agency to introduce energy-efficient vehicles to the provincial fleet. The Branch participated in Conservation's fleet replacement to improve efficiency of replacement vehicles for 2001. The Branch looked at all 90 replacement candidates to assess use (highway vs. city, hauling, etc.), calculate fuel efficiency conversion factors (Energuide vs. actual fuel consumption) and to determine the most fuel-efficient replacements that do the job at hand effectively. Selections were coordinated between FVA, the Department, and the Branch. 57 vehicles were replaced. Data gathered from replacement vehicles will determine effectiveness of this method of vehicle replacement.

Table PC.1

12-3(c) Petroleum and Energy

Expenditures by Sub-appropriation	Actual 2000/01	Estimate 2000/01		Variance Over/(Under)	Expl. No.
	$	FTE	$		
Total Salaries and Employee Benefits	552.2	31.00	556.7	(4.5)	
Other Expenditures	247.1		281.6	(34.5)	

Chapter 8

Forestry

Forestry Branch plans, manages and allocates forest resources for the long-term social, economic, and environmental benefit of Manitobans. Crown forests are managed sustainably for all users; harvest and renewal activities are implemented in a manner that conserves ecosystem diversity. To limit widespread tree mortality and timber losses, levels of protection are provided commensurate with social, economic, and environmental values at risk. The Branch encourages diversification and growth of the forest industry, emphasizing efficient utilization. The Branch advises and assists the public and industry in forest health and ecology for provincial Crown land, private woodlots and urban forests.

Administration

The Section oversees activity effectiveness to meet goals, reviews Crown Forest Management Plans, and guides and informs Regional managers and enforcement personnel on policies and procedures. The Section prepares annual estimates, provides financial and personnel services, co-ordinates development of the annual work plan and administers grants to such co-operating agencies as Manitoba Forestry Association and Manitoba Habitat Heritage Corporation.

The Branch conducted a review of its mandates and organizational structure to ensure a sustained focus on departmental priorities relating to forest management.

The Ecosystems Based Management (EBM) Pilot Project on the East Side of Lake Winnipeg completed *First Nations Land Use Studies* and a report on *Public Values*.

The Forestry Branch Website was reformatted to the new provincial design and expanded. Staff worked with Manitoba Forestry Association to deliver a three-day workshop for teachers (*Forest-Ed*), and an environmental education competition, *Envirothon*.

Participation continued on the advisory committee for Manitoba Hydro's Forest Enhancement Program. This committee provides direction on annual allocation of over $340,000 to community and non-profit tree planting, research, and forest education.

The Manitoba Model Forest project was supported by in-kind contributions and two reprecentatives who sit as Directors.

Table FO.1
12-3(d)-1 Administration

Expenditures by Sub-appropriation	Actual 2000/01	Estimate 2000/01		Variance Over/(Under)	Expl. No.
	$	FTE	$		
Total Salaries and Employee Benefits	311.6	8.00	342.6	(31.0)	
Other Expenditures	420.0		447.7	(27.7)	
- Grants/Transfer Payments	465.8		465.8	(0.0)	
Total Other Expenditures	885.8		913.5	(27.7)	

Forest Resources Management

The Section is responsible to map and determine type and productivity of forest stands, and track changes due to fire, harvesting and other impacts. Timber harvest is managed by setting harvest levels and planning requirements, and delivered by Regional staff through plan approvals, enforcement, and inspections.

Software and hardware were replaced to more effectively operate the Geographic Information System, manage the *Forest Resource Inventory* (FRI) database, and conduct resource evaluations. Updates to FRI included re-inventory of Forest Management Units (FMU) 31 and 35 in *Forest Management Licence* Area #1(Tembec/Pine Falls Paper), re-inventory part of FMU 20, re-digitizing Provincial Park boundaries, and processing fire depletion. FRI responded to information requests from Department staff, industry, consultants, academics, and the public.

The Forest Practices Initiative, to establish best-practices management guidelines, significantly progressed on guidebooks on protecting softwood understory in hardwood stands, forest road management, and pre-harvest surveys. Developed in consultation with other Branches and industry, these guidelines will link policy, regulations, operations, and inspections. Two reviews were conducted, of brush disposal on timber harvest operations, and harvest utilization standards. Forest practices were reviewed and compared to other provinces' practices, and a survey of professional forestry opinion from across Canada was conducted.

The tabular component of Manitoba Silviculture Information System was completed for reporting depletion and silvicultural activities. The system has been installed in Regional offices to track forestry activities. The GIS component, to be developed, will link tabular records to maps for comprehensive reporting and to maintain the FRI.

Responsibilities for Silviculture Surveys, including *Regeneration* and *Free to Grow* surveys were transferred to Forest Health and Ecology Section.

Digital orthophotos improved base-mapping accuracy in Forest Management Units 20, 31 and 35. Land Information Centre continued to collect vector information for base features such as roads, rivers, lakes, and utility corridors.

Transfer of typed photographs onto plotted digital orthophotos continues in advance of digitizing into the GIS. Photo-interpretation was completed in FMU 31 and initiated in FMU 20, including identification of additional attributes such as moisture class, landform, height, year of origin, and ten-percent crown-closure classes.

A technical advisory committee, including the forest industry, completed a report on inventory needs and an ecologically-based design for a new Inventory which they presented to industry and staff. Discussion took place with Louisiana-Pacific to develop a joint inventory pilot project for FMU's 13 and 14, to test attributes and procedures prior to general implementation.

Annual Operating Plans were submitted by Forest Management Licensees (Tembec/Pine Falls Paper, Louisiana Pacific, and Tolko Manitoba) for comment and approval. A *Two-Year Operating Plan* was submitted by the Mountain Quota Holders Association for portions of Mountain Forest Section. Comments and approval were provided preparatory to submission to Environment Approvals Branch for an *Environment Act Licence*.

A wood supply report submitted by Tembec for a proposed sawmill was evaluated. The Branch undertook a detailed wood supply analysis for Integrated Wood Supply Area #2, *Forest Management Licence* Area #1 and Forest Management Unit 23.

Growth and yield databases were consolidated and updated and a major effort was initiated to accelerate development of yield equations for wood supply analysis. The program focused on collection of data through stem analysis and re-measurement of permanent sample plots. A technical committee, established with industry and Manitoba Model Forest, advises on developing a program for growth and yield.

Table FO.2
12-3(d)-2 Forest Resources Management

Expenditures by Sub-appropriation	Actual 2000/01 $	Estimate 2000/01 FTE	Estimate 2000/01 $	Variance Over/(Under)	Expl. No.
Total Salaries and Employee Benefits	882.8	18.00	896.2	(13.4)	
Total Other Expenditures	379.0		627.7	(248.7)	

Forest Health and Ecology

The Section protects forests from damage by insects, disease and other factors, assists wildfire management, ensures all harvested Crown forest land is renewed to maintain ecosystem integrity and biodiversity, and advises and assists the public and industry on forest health and ecology.

The forest renewal program delivered by Regional Operations is administered and co-ordinated. The Department and industry carried out forest renewal treatments on 12,081.5 ha, including retreatments. Most of the area was planted, using 16.8 million trees, with scarification to promote natural regeneration on the rest. Except for some Department planting in Eastern Region, delivery was through tendered contracts.

Of 15,544 ha harvested in 1997-98, 45% (7,002 ha) was treated for reforestation, and the rest left to regenerate naturally or be treated in future. Expanding harvest of poplar (about 28% of harvested area over past five years) has increased area left to regenerate naturally, as poplar regenerates readily from root suckering. About 481 ha of harvested area that had not restocked sufficiently was retreated by planting.

The Section maintains the pool of site-preparation equipment and co-ordinates use with Regional Operations. Renewal technology transfer to Regional staff is provided through field trials and promoting innovation. Regional renewal programs are also supported through administration and co-ordination of silviculture contracts and assisting planning and delivery of vegetation management.

Tembec/Pine Falls Paper and Tolko Manitoba hired contract surveyors for regeneration surveys, and staff to check survey results. Louisiana-Pacific utilizes company staff to survey. The Branch tested contract and company surveyors. Tembec completed surveys with two individuals, Tolko had 8 individuals and Louisiana-Pacific had 3. All obtained *Regeneration Surveyor Licenses*. An audit of Tembec, Tolko and Louisiana-Pacific surveys and check surveys was successful, with *Certificates of Reforestation* being issued. Regeneration surveys, to determine success of forest renewal, were performed on 15,710 ha. The Branch surveyed 4,425 ha while licensed regeneration surveyors from Tolko surveyed 8,970 ha, L-P surveyed 527 ha, and Tembec surveyed 1,788 ha.

The Branch performed *Free-to-Grow* (*FTG*) surveys on softwood-dominated forest stands, 15-20 years old, to determine if they are developing appropriately. Two techniques were used, full and extensive. Full-survey technique was used on 1,622 ha and extensive technique on 1,015 ha. Draft documents were provided to industry, detailing the proposed strategy for implementing *FTG* surveys. Branch staff trained surveyors from Tembec to perform *FTG* surveys. They performed surveys on 874 ha.

Surveys, efficacy tests, and research on significant insects and diseases were conducted. Significant pests included spruce budworm, jack pine budworm, elm bark beetles, western gall rust, armillaria root rot, and pine root collar weevil. Forest health data was collected in regeneration, *FTG*, and pre-harvest surveys, to develop management prescriptions and track substantially infected stands.

Spruce budworm infested about 80,507 ha. About 15,771 ha of spruce/fir were moderately to severely defoliated in Tembec's Forest Management License Area (FMLA), and in Nopiming, Whiteshell, and Hecla Island Provincial Parks. Infestation in Duck Mountain Provincial Forest, in Louisiana-Pacific's FMLA, decreased substantially to 800 ha. Infestation in northwest, in Tolko's FMLA, expanded again, to 60,036 ha. The outbreak in Spruce Woods increased slightly to 3,900 ha. Emergency funding was provided to enable spraying biological insecticide, *Mimic*, on 18,954 ha in Athapapuskow Lake area (Tolko).

Dutch elm disease (DED) management seeks to reduce annual mortality to 3% or less by cost-shared agreements with municipal governments. A total of 15,269 elms were removed from 38 cost-share communities and seven urban-buffer-zone municipalities. Urban centres include Brandon, Portage la Prairie, Morden, Winkler, Dauphin, Steinbach, and Selkirk. There were 14,796 elms marked for removal in cost-share communities and Winnipeg buffer zone (which, through emergency funding, was expanded). High levels of DED persist along rivers, especially Red and Assiniboine Rivers; Boyne River (near Carman), and Souris River riparian zones remain extensively infected.

Widespread moderate and severe defoliation by forest tent caterpillar occurred throughout much of Whiteshell, Nopiming and Hecla Island Provincial Parks. Localized severe defoliation occurred in Municipalities of Whitemouth, Reynolds, Lac du Bonnet, Brokenhead, Ste. Anne, Springfield, and Alexander.

A fall egg-band survey predicted forest tent caterpillar defoliation in 2001. Nil to light defoliation is expected in most of west and north. Moderate to severe defoliation is predicted for Hecla Island Provincial Park. Moderate and severe defoliation is predicted in southeast from Red River to Manitoba/Ontario boundary, including Municipalities of Victoria Beach, Whitemouth, Reynolds, Lac du Bonnet, Brokenhead, Ste. Anne, Springfield, and Alexander, plus Grand Beach, Whiteshell, Saint Malo and Nopiming Provincial Parks.

Measurement of decay in aspen forests continued in support of growing hardwood industry. Jack pine budworm populations remained low.

Fire Program is assisted by identifying values at risk, reviewing *Forest Management Licencees*' annual fire control plans, and participating in Canadian Forest Service's National Fire Database mapping.

Table FO.3
Forest Renewal Activities, 2000-01

	Manitoba Conservation	Tembec/ Pine Falls	Tolko Manitoba	Louisiana-Pacific	Total
Area Treated (hectares)	3,248.0	598.0	6,595.0	1,159.5	11,600.5
Area Retreated (hectares)	129.2	225.0	0.0	126.8	481.0
Total Treated Areas	3,377.2	823.0	6,595.0	1,286.3	12,081.5
Total Trees Planted (1000s)	**4,455.9**	**1,694.3**	**8,314.0**	**2,291.5**	**16,755.7**
Total Area Site Prepared for Renewal Treatment (hectares)	1,208.1	413.0	4,223.0	1,157.9	7,002.0
Total Area Tended (hectares)	91.6	388.0	0.0	0.0	479.6
Total Cones Collected (hectolitres)	14.0	0.0	50.0	102.0	166.0

The Section works with University of Winnipeg Centre for Interdisciplinary Forest Research and Tembec to compare effects of harvest and natural disturbance on biodiversity, using arthropod indicators. There were 17 plots established and sampled. Data was collected on Lepidoptera (moths and butterflies), Coleoptera (carabid beetles) and soil arthropods (mites). Over 3000 lepidoptera specimens, comprising 40 butterfly and skipper species, were collected, as were over 3000 beetle specimens, and over 800 soil samples for mite extraction.

The tree improvement program consists of seven industry cooperatives with Tolko, Louisiana Pacific, and Tembec and six provincial programs. 12 seed orchards, (59.7 ha.), and 21 family tests (63.6 ha.) have been established. Improved jack pine seed is available in three breeding zones, and improved seed will soon be available from two black spruce and one white spruce seed orchards

Table FO.4
12-3(d)-3 Forest Health and Ecology

Expenditures by Sub-appropriation	Actual 2000/01 $	FTE	Estimate 2000/01 $	Variance Over/(Under)	Expl. No.
Total Salaries and Employee Benefits	1,975.1	24.06	1,668.2	306.9	
Total Other Expenditures	2,118.7		2,637.2	(518.5)	

Forest Economics and Marketing

The Section promotes a sustainable, diversified, and integrated forestry industry, and manages tenured Crown land to ensure consumption of timber is consistent with provincial legislation and administrative requirements. Manitoba's primary forest industry employs about 5,000 people directly and indirectly.

Crown roundwood harvest totaled 2,188,482.39 m^3. This volume was harvested by three *Forest Management Licencees*, 204 *Timber Sale Agreement* holders and 2,617 *Timber Permitees*. Revenue totaled $6,045,133.48, of which 66% is Crown Timber Dues.

Tembec/Pine Falls Paper continued construction of a thermal-mechanical pulping mill; operational testing was underway at year end. Discussions continued between the company and First Nations about a joint sawmill venture. Tolko Manitoba (The Pas) completed a sawmill upgrade, but market conditions stopped mill operation in March 2001. Discussions continued on status of the southern area of Tolko's *Forest Management Licence* and their hardwood allocation.

Crown timber dues rates, subject to the *Manitoba Forest Products Price Index*, were left unchanged. The Branch retained services of Agfor Inc. to review the dues system, a first step in developing a new dues assessment process.

The Section responded to numerous inquiries about forest industry development opportunities. Interested parties ranged from local operators wanting to expand business, to European multi-nationals investigating wood availability. Manitoba has hardwood (primarily aspen) resources that could support development, particularly in the north, through Aboriginal partnerships.

An internal review of the scaling program was completed. Among issues identified were staff succession, need for designated regional scaling specialists, and re-calibration of conversion factors.

Regular compliance check scales ensured roundwood is measured to specifications of *Manitoba Scaling Manual*. The Section began review of weight factors used by Roblin Forest Products and assisted field staff with scaling concerns.

In cooperation with Canadian Forest Service and Manitoba Industry Trade and Mines, the Section began a study of primary and secondary wood-using industries, leading to directories for each industry group.

Manitoba Forestry Association and Manitoba Habitat Heritage Corporation provided woodlot programming for the Department, to improve management on private lands by developing plans and technology transfer to landowners.

Table FO.5
12-3(d)-4 Forest Economics and Marketing

Expenditures by Sub-appropriation	Actual 2000/01 $	Estimate 2000/01 FTE	Estimate 2000/01 $	Variance Over/(Under)	Expl. No.
Total Salaries and Employee Benefits	347.9	7.00	355.2	(7.3)	
Total Other Expenditures	94.6		50.7	43.9	

Forest Regeneration Stock

8 million seedlings were purchased for planting by Manitoba Conservation, Tembec, and Louisiana Pacific from Pineland Nursery. (Tolko purchases seedlings independently.) This appropriation is also used for seed collection, extraction, and storage, transporting seedlings to the field, and a stock identification system.

Table FO.6
12-3(d)-5 Forest Regeneration Stock

Expenditures by Sub-appropriation	Actual 2000/01 $	Estimate 2000/01 FTE	Estimate 2000/01 $	Variance Over/(Under)	Expl. No.
Total Other Expenditures	1,453.7		1,411.9	41.8	

Chapter 9

Fisheries

Fisheries Branch ensures sustainable development of fisheries resources. Management programs are developed to provide greatest benefits to Manitobans, by maintaining or enhancing populations and habitat, monitoring harvest and habitat alterations, and allocating resources for best return. The Branch directs and reports on programs and budgets, legislation and policy, standards and guidelines, and coordination and monitoring. The Branch also administers the Northern Fishermen's Freight Assistance Program.

Programs are implemented by Regional staff; Regional Fisheries Managers, under Operations Division, report to Regional Directors responsible for operational decision-making and program delivery.

Winnipeg's Urban Angling Partnership, comprising Mid-Canada Marine Dealers Association, Manitoba Wildlife Federation, Fish Futures Inc, *The Complete Angler*, City of Winnipeg and the government of Manitoba, received the *2000 Canada Recreational Fisheries Award*. Since the Award's inception (1989), only three winners have been from Manitoba. The Award is presented to Canadian individuals and organizations to recognize their work to protect and enhance recreational fisheries and habitat, improve fishing opportunities, and encourage industry and tourism development.

A Sustainable Development Website was developed to integrate sustainable development concepts into the new Kindergarten-Grade 8 *Science: Manitoba Curriculum Framework of Outcomes*. The site is a Manitoba first in integrating fisheries information into a science curriculum via the Internet. The site was promoted at teacher workshops and conferences, including the Special Areas Group (Science) workshop. Work will continue with educators to develop exercises for Grades 9 - 12, for implementation in fall 2001.

The first phase of Fisheries Information Corporate Database was completed in fall 2000. The system will provide staff with quick and efficient access to fisheries information. Development will continue to incorporate remaining database applications.

Sturgeon Creek Association and Fish Futures, completed a fishway on Sturgeon Creek at Grant's Old Mill with assistance from the Department, Manitoba Wildlife Federation, and local game and fish affiliates. The fishway is unique in being in a major urban centre.

Participation continued in ecosystems based management (EBM) pilot project in Lac Seul Upland ecoregion, east of Lake Winnipeg. Emphasis is on how to do many aspects of EBM, to develop procedures for government and private-sector resource managers. The EBM structure includes; 1) a Department Core Team that co-ordinates, 2) a Science Team developing an ecological description, and 3) a Values Team researching public values. Fisheries staff participated on Core Team (advising on fisheries and socioeconomic activities), produced aquatic resources component for Science Team report, acted as primary Department contact for Values Team, edited and coordinated production of draft Values Team report, and liaised between Values and Science Teams. Project completion date is targeted at early 2001-02, in time for the significant information/databases generated to be integrated into the Department's planning for east of Lake Winnipeg.

At Whiteshell Fish Hatchery, a Visitor Centre was constructed with assistance from Fish Futures. Summer tours of the Hatchery are more popular each year, with over 67 in 2000 (1,236 individuals). The Centre provides a sheltered area to begin tours, washrooms, and drinking water. Interpretive exhibits have been designed to include information on species reared at the Hatchery, life stages of fish, how water is used, history of the Hatchery, and the like. These will be constructed and installed in 2001.

The Branch continued to participate in the national Recreational Fishing Task Group and co-chair the national Freshwater Fish Strategy Task Group. These Groups, reporting to Canadian Council of Fisheries and Aquaculture Ministers, were tasked with developing coordinated action plans that involve stakeholders and maximize management efficiency and effectiveness. Key actions under the Recreational Fishing Group include nationally coordinated participation in a National Fishing Week and development of a national recreational fishing website in 2001.

Administration

This section provides annual estimates, financial and personnel services, and administrative support.

Table FI.1
12-3(e)-1 Administration

Expenditures by Sub-appropriation	Actual 2000/01		Estimate 2000/01	Variance Over/(Under)	Expl. No.
	$	FTE	$		
Total Salaries and Employee Benefits	121.1	2.00	119.8	1.3	
Total Other Expenditures	199.4		203.3	(3.9)	

Fish Culture

Stocking programs create new self-sustaining fisheries, maintain and enhance fisheries where natural reproduction fails or winterkill occurs, and introduce species. Fish are produced at Whiteshell and Grand Rapids Hatcheries, the latter co-funded by Manitoba Hydro. A seasonal walleye hatchery is operated at Swan Creek on Lake Manitoba.

Over 83 million eggs were collected from walleye captured in Swan Creek near Lundar. The majority of these eggs, 67.7 million, were incubated at Swan Creek Hatchery; 10 million were sent to Lonely Lake Drain Hatchery (operated by local volunteers); and 5.8 million were sent to Whiteshell Hatchery . The 41.3 million fry that hatched at Swan Creek Hatchery were distributed as follows: 12.7 million back to Lake Manitoba, its tributaries and rearing ponds (as replacement for eggs collected and to support sport and commercial fisheries); 11.6 million in waters in Central Region;12.0 million in Western Region; and 5.0 million to the Saskatchewan River at Grand Rapids. There is an obligation under the Grand Rapids Hatchery co-funding agreement with Manitoba Hydro to stock the Saskatchewan River at Grand Rapids, where Hydro seeks to re-establish a self-sustaining walleye population.

At Whiteshell Hatchery, 6.7 million walleye eggs were collected from Falcon Creek. Total eggs incubated at Whiteshell Hatchery was 12.5 million (6.7 from Falcon Creek plus 5.8 from Swan Creek) producing 8.8 million fry. All walleye fry were stocked in sport-fishing waters in southeast, including 850,000 to Falcon Creek as replacement.

Grand Rapids Hatchery received 6,227 eggs from a sturgeon captured at confluence of Landing and Nelson rivers. These eggs produced 6,027 fry for rearing. 5,301 fingerlings were stocked back to Nelson River to enhance stocks and 75 were used in educational aquaria. Grand Rapids Hatchery received eggs from a sturgeon captured at Cumberland House, Saskatchewan. Of 45,870 eggs incubated, 28,650 hatched; 22,200 fry were stocked back in Saskatchewan River at Cumberland House and 6,450 were retained for rearing. Unfortunately all but 400 of these fry perished due to water quality problems. Survivors were reared to fingerling size and stocked back to Saskatchewan River at Cumberland House.

149,000 sturgeon eggs, from five females in Winnipeg River, were incubated at Whiteshell Hatchery. 104,000 fry were returned to Winnipeg River, 2,000 were stocked in Assiniboine River at Brandon, 1,100 were provided for scientific research, and 12,000 were retained for rearing. 11,000 sturgeon fingerlings were stocked back to Winnipeg River, and 1,000 were stocked in Assiniboine River at Brandon.

42 million whitefish fry hatched at Grand Rapids Hatchery from 61 million eggs from Lake St. Martin. Thirty million fry were stocked in Cross Lake under the Hatchery co-funding agreement with Manitoba Hydro; 12 million were stocked in Lake St. Martin as replacement for eggs collected. A small number of fry were retained for experimental rearing to fingerling size. 2,000 whitefish fingerlings were stocked in Lake St. Martin.

Trout and char were produced at Whiteshell and Grand Rapids Hatcheries. Species raised at Grand Rapids included lake trout, splake, brook trout, and rainbow trout. Of 940,800 lake trout eggs collected from Clearwater Lake, 858,400 were fertilized upon collection and transported to Grand Rapids Hatchery for incubation (763,400) or stocked back to reefs in Clearwater Lake as replacement (95,000). The remaining 82,397 unfertilized eggs were transported to Grand Rapids and fertilized with sperm from resident brook trout to produce hybrid splake. Lake trout and splake eggs were incubated over the winter at Grand Rapids. Species raised at Whiteshell Hatchery included rainbow trout, brook trout, brown trout, Arctic char, Arctic char *x* brook trout hybrid, plus lake trout and splake that had been transferred from Grand Rapids Hatchery.

The Section continued assisting volunteer organisations to enhance local stocks. Groups at Lonely Lake Drain, Lynchs Point, Icelandic River, Warpath/Dauphin River, Winnipegosis, Duck Bay, and Overflowing/Red Deer Rivers were involved in walleye spawn collection and/or incubation projects.

Table FI.2
Distribution to Sport Fishing Waters from Fish Hatcheries, 2000-01

Species	Fry & Eggs	Fish <18cm long	Fish ≥18cm long
Arctic Char	0	0	17
Char X Brook Hybrid	0	25,000	0
Brook Trout	0	136,500	5,064
Brown Trout	0	135,700	43,149
Lake Trout	95,000 eggs	439,300	0
Rainbow Trout	0	266,975	43,149
Splake	0	65,000	0
Walleye	18,800,000	0	0

(Excludes stocking to waterbodies with both sport and commercial fishing, such as Lake Manitoba.)

Table FI.3
12-3(e)-2 Fish Culture

Expenditures by Sub-appropriation	Actual 2000/01 $	FTE	Estimate 2000/01 $	Variance Over/(Under)	Expl. No.
Total Salaries and Employee Benefits	694.6	16.19	676.4	18.2	
Total Other Expenditures	276.9		279.9	(3.0)	

Fisheries Habitat Management

The Section supports conservation, evaluation, restoration, and enhancement of fish habitat to achieve a net gain in healthy, productive fish habitats and stocks.

The Section reviews proposed developments that may affect surface waters, fish, and habitat, and recommends measures for mitigating or avoiding adverse impacts. 60 proposals were reviewed under ***The Environment Act***. These proposals ranged from water-treatment plants, wastewater treatment lagoons, and land disposal of sludge, to warehouse and fertilizer storage, crop protection warehouses, water withdrawals, and bridge projects. 58 other proposals were reviewed: 33 miscellaneous, 16 pre-licensing environmental screening, 3 dangerous goods and transportation handling, 2 draft *Licences*, 2 Fisheries and Oceans Canada referrals, 1 impact assessment review, and 1 draft *Environmental Impact Assessment Guideline* review.

To address concerns with potential impacts of planned or inadvertent introduction of aquatic organisms, a draft *Introductions and Transfer Code* was sent for comment to stakeholder groups engaged in aquaculture or with other interest.

The section assisted Manitoba Heavy Construction Association, Centra Gas, Fisheries and Oceans Canada, and Manitoba Transportation and Government Services, to develop format and content for a workshop on stream crossings, held in fall.

Arranged and attended meetings with Mines Branch and Environment Canada on acid drainage problems with old mine tailings at Sherridon.

Instream flow issues continue to be particularly significant. Engineering and hydrological consultants were employed to complete a hydraulic and substrate survey of Assiniboine River near the riffles downstream of Brandon and Holland. As development continues on the Assiniboine, including a proposed potato processing plant, establishment of instream flow reservations for protection of the fish and fish habitat is a high priority. A committee of experts from Manitoba Conservation, Fisheries and Oceans Canada, and University of Manitoba worked to determine quantity and timing of water needed to sustain fish and habitat.

The Urban Stream Stewardship Organizing Committee continued workshops on stream ecology and related issues. Construction of two demonstration riffles, proposed for Seine River last year, was delayed. The denil fishway at Grant's Old Mill on Sturgeon Creek was completed; landscaping will continue into summer 2001. A Management Plan for the Creek is being planned for 2001 implementation. Willow bundles were planted along a reach of Bunns Creek. This soil bioengineering technique uses dormant vegetation to stabilize and revegetate eroded banks to a more natural state. Bioengineering techniques are used alone or in conjunction with rock armouring.

With Manitoba Hydro, a study was supported to determine if small northern pike could pass through an eight inch vertical slot at Pinawa experimental fishway flume. Results were used to redesign the vertical slot opening on Sturgeon Creek fishway.

A report summarizing Little Saskatchewan watershed plannning, implementation, and site costs was completed. This will be reworked into a public information brochure in 2001.

Watershed restoration projects are increasing as a comprehensive and multi-faceted approach to join user groups and agencies in restoring health and function to watersheds. This approach, modeled after successful Dauphin Lake and Little Saskatchewan River initiatives, is being applied to Upper Whitemud River, Brokenhead River, selected Lake Manitoba north basin tributaries, selected tributaries of Souris River, and headwaters of Valley River.

In Upper Whitemud River watershed, a habitat survey on Stony Creek was initiated. Stony Creek is a natural-reproduction brook trout stream targeted for riparian protection/enhancement work by Upper Whitemud Watershed Committee. Sites were identified and priorized in an *Inventory Report* (1999). Habitat surveys of pristine and cattle-impacted reaches will permit comparison with results of rehabilitation work scheduled for

2001. Information collected included: substrate type and size, pool depths, water velocities, bankfull and present stream widths, riparian condition and species type, and reach profiles. Brook trout redds (spawning nests) were identified. A study was initiated on Brookdale Drain to identify sediment loading sites that may be impacting Lake Irwin.

Habitat inventory on selected Lake Manitoba north basin tributaries was completed. Lake Manitoba Enhancement Committee and partners selected Powderhorn Creek for more in-depth inventory. Manitoba Agriculture is working with landowners to implement land management changes on the lower reach. For Brokenhead and Valley Rivers, and selected Souris River tributaries, initial planning assessment began.

Partnership with Manitoba Purple Loosestrife Project and Water Quality produced an aquatic nuisance display for Mid-Canada Boat Show, highlighting species that are potential threats. A display on doing watershed planning was set up at the annual Conservation District Meeting, and at the *Cows and Fish Seminars* in Ashern and Whitemouth.

Staff assisted in test-writing and fieldday logistics for *Manitoba Envirothon* at Oak Hammock Marsh. *Envirothon* is an annual Olympic-style academic and environmental program. The team with the highest score represented Manitoba at the *National Canon Envirothon* (Nova Scotia).

Table FI.4

12-3(e)-3 Fisheries Habitat Management

Expenditures by Sub-appropriation	Actual 2000/01 $	FTE	Estimate 2000/01 $	Variance Over/(Under)	Expl. No.
Total Salaries and Employee Benefits	346.1	7.00	349.0	(2.9)	
Total Other Expenditures	86.9		64.7	22.2	

Sport and Commercial Fishing Management

The Section develops, administers, and evaluates management programs and policies for sport, commercial, and domestic use, including commercial bait-fishing, and trout farming. It also manages Northern Fishermen's Freight Assistance Program, distribution and reconciliation of commercial fishing licences, and fish production information.

The *Commercial Fishermen's Records Regulation* was amended to require that commercial fishermen, who sell fish under a Freshwater Fish Marketing Corporation (FFMC) *Special Dealers Licence*, report sales of fish sold outside FFMC. Previously, sales under the *Special Dealers Licence* were not covered by the regulation. Commercial fish harvest levels are monitored by FFMC production records, and, for those selling directly to consumers, via *Trade Records*. This amendment ensures that this essential information is available for management activities.

The *Fishing Licensing Regulation* was amended to redefine *Conservation Angling Licence* and remove special angling licence requirement on Mooswa Lake. *Conservation Angling Licence* creel limits were adjusted under the *Manitoba Fishery Regulations, 1987* and no longer reflected the definition in the regulation. Creel limits were adjusted on Mooswa Lake, consistent with other high quality management lakes, such that the special licence is no longer required.

Director's Authorizations, which allow small retailers to sell fish for commercial fishermen, were processed for 40 fishermen consigning fish to four retailers. Sales under *Authorizations* totalled 25,576 kgs (56,384 lbs), of which 61% was pickerel/sauger.

Lake Winnipegosis

Assessment continued on broadening representation on the Advisory Board to include the full range of fishing interests, including commercial fishing, Aboriginal, and tourism. The Board will recommend on key elements of rehabilitation and management, based on recommendations of an independent study. During open-water and winter fisheries, pickerel production was 223,443 kg (492,600 lbs), down 17% from last year.

Lake Winnipeg

Work began to establish a commercial fishermen's advisory body to address short-term issues and assist developing a longer-term strategy. With a broadly-based advisory body, it is hoped that a mutually-agreeable, publicly-acceptable strategy can be developed to sustain a healthy, viable commercial fishery. During open-water and winter fisheries, pickerel production (3.7 million kg) and whitefish production (1.4 million kg) were up 26% and 32%, respectively. Sauger production (542,052 kg) declined by 43%.

Lake Manitoba

Following extensive consultations with stakeholders (commercial fishermen, West Lake and Narrows Game and Fish Association, Lake Manitoba Fish Enhancement Committee, Manitoba Wildlife Federation), a limited winter perch fishery using 3" mesh nets was authorized. While this fishery has been valuable to fishermen in south basin, concerns about pickerel and sauger stocks were expressed, including excessive harvest of small pickerel. Consequently, use of 3" mesh was prohibited in key areas and a 10% walleye limit or tolerance was imposed. Subsequently, north basin 3" fishery was closed in early February as the pickerel tolerance was exceeded. Pickerel production (413,140 kg) in winter was up 26% from last year, while sauger production (27,987 kg) declined by 55%, and perch production (86,275 kg) increased by 3%.

Other Programs

Fieldwork on Winnipeg River sturgeon, index netting on Cedar Lake, and routine analyses of Cedar Lake data, were completed. Population estimates for sturgeon in Winnipeg River were updated. 250 walleye samples from the Saskatchewan River system were collected and submitted for DNA analysis. A manuscript report, *Commercial Fisheries of the Saskatchewan River System*, was completed. All Lake Winnipeg index netting, trawling and commercial catch samples from 1979-2000 were inputed. 256 cohorts of walleye, sauger and whitefish have been constructed. Staff aged 19,281 scale samples and processed 13,580 fish samples.

The Department worked with Northwest Fisheries Co-op on northern fishery economic viability issues and investigated mechanisms at different funding levels to update Northern Fishermen's Freight Assistance (NFFA) Program.

Work continued with Island Lake fishermen to manage and administer the fishery. This includes continued access to the Northern Fishermen's Freight Assistance program (NFFA), administered here by the Department outside of normal administration through Freshwater Fish Marketing Corporation. Commercial production of summer fishery was about 30,678 kg marketed weight for about 11 fishermen. Freight subsidy totalled $1,859. About 23 commercial fishermen fished Stevenson Lake, producing 14,516 kg marketed weight of fish, selling through FFMC Wabowden fish agency. Most production was non-subsidized pickerel.

The old Cedar Lake commercial fishermen's organization was replaced by a new one with a new board of directors. A new *Fisheries Management Plan* is being developed during lake closure (until 1 June 2003) in consultation with the Department.

Little Grand Rapids First Nation initiated a small winter commercial fishery in nearby lakes feeding Family Lake. The Department authorized 5 experimental winter *Commercial Fishing Licences* and continued working with Little Grand Rapids community to identify lakes and quotas and provide technical information.

Southern Chiefs Organization hosted a Manitoba Inland Commercial Fisheries Conference in with a theme of enhancing viability and sustainability. Manitoba Metis Federation and Norway House Cree Nation co-hosted a

Western Commercial Fisheries Conference in Winnipeg with 400 delegates in attendence from Manitoba, Saskatchewan, Alberta and the Northwest Territories. Oliver Monkman, Norman Traverse and Carl Braun were appointed by Manitoba commercial fishermen to work with other provincial commercial fishermen's associations on issues affecting western inland commercial fisheries.

There are 24 licensed fish-farmers and over 600 hobby farmers in private waters. Four major operators (two fingerling producers and two brokers/importers) distribute fingerlings to hobby farmers each spring. One fee-for-fishing business, where customers pay to fish in privately-stocked ponds or Crown waters, provides easy access to fishing from shore, ideal for small children and individuals otherwise unable to angle. In 1999, fish farmers reported selling 196,000 rainbow trout fingerlings. Grow-out operations sold 4,260 kgs of rainbow trout and 3,960 kgs of arctic char.

79 commercial baitfish fishers were licensed, producing about 86,600 kgs of frozen baitfish. 42 live-bait fishers produced about 119,170 dozen baitfish. Gross sales were about $616,030. 31 *Leech Licences* were issued, with about 1,710 kgs produced, valued at about $66,940. 58 *Live Bait Dealer Licenses* were issued, allowing retail sale of live baitfish and leeches.

Fisheries Branch continues to lead the Urban Angling Partnership (UAP), comprising Manitoba, Winnipeg, Manitoba Wildlife Federation, Fish Futures, Mid-Canada Marine Dealers Association, and Don Lamont of *The Complete Angler*, that promotes angling in the city, especially the excellent opportunities on Red and Assiniboine Rivers. UAP activities included:

- *Learn to Fish Clinics*, offered through Winnipeg Community Services Department Leisure Program, aimed at families, new anglers, and those who have not fished for some time. Tackle dealers provide bait, tackle, and instruction, while manufacturers provide equipment. Fish and game clubs provide volunteer assistance,
- *Winnipeg Fish Festival*: a one-day event at The Forks, showcases the recreational angling community and promotes angling in the city as an affordable leisure activity. An estimated 5,000+ visitors attended fish-filleting demonstrations, kids fishing educational stations, fishing displays, arts and crafts, on-stage seminars, and casting competitions.
- *Fish Winnipeg Media/Corporate Challenge*: a one-day event exposing media and corporate communities to this world-class recreational fishery. The event introduces Winnipeggers to this fishery, showcases the angling community, promotes angling as a healthy, self-esteem building outdoor leisure activity for youth, and raises funds to benefit Winnipeg youth/youth-at-risk angling programs. Over $14,000 was raised that was targeted at inner city youth-at-risk, and approximately 500 children enjoyed an angling experience. Plans for 2001 include expansion of the event and additional kids fishing camps.
- Angling access development: improving access enhances popularity of urban angling. Efforts of UAP members developed fishing platforms to complement existing public docks, and increased riverbank access along Red River. In addition, a shoreline access point was completed for park enhancement along Assiniboine River. Work will continue on development and enhancement of access sites along Winnipeg's river and stream corridors.
- *Catfish Hunter Initiative*: working in cooperation with the Winnipeg Goldeyes Baseball Club, UAP assisted development and implementation of the Winnipeg Goldeyes Catfish Hunter Contest. The contest promotes angling and profiles the world-class fishery on Red and Assiniboine rivers.

The 2001 ***Anglers' Guide***, published under contract with Fish Futures, summarizes angling regulations, highlights new and proposed regulations, and includes management and other information. Anglers and user groups continued an important role in developing regulations; attention is directed towards simplification without diminishing conservation.

Promotion of angling included distribution of materials at Mid-Canada Boat Show, mall events, fishing clubs, festivals, and schools. Urban fishing and angling regulations were emphasized.

The Branch coordinated a Recreational Fishing League for youth 9-15 years old, as a pilot project. Seven teams of eight children, with two coaches, fished once a week for six weeks. Based on length of fish caught, teams were awarded points to determine a league winner. Teams were located in Dauphin, Lac du

Bonnet, Neepawa, Selkirk, Shilo, Swan River and West St. Paul. A website allowed participants to follow league "action". Partners in this program included the Manitoba Wildlife Federation, Mid Canada Marine Dealers Association, Pure Fishing (Berkley Canada), Recreation Connections. Plans are underway to continue an expanded program in 2001, lead by Manitoba Wildlife Federation.

Manitoba participates in survey of recreational anglers in Canada, conducted every five years since 1975. Data are collected from residents and non-residents on angling effort, catch rates, and economic benefits generated by angling. For the survey on the 2000 season, preliminary data is expected in late 2001.

Resident angling licence sales have remained constant, while non-resident license sales continue to increase slightly.

Table FI.5
12-3(e)-4 Sport and Commercial Fishing Management

Expenditures by Sub-appropriation	Actual 2000/01 $	Estimate 2000/01 FTE	Estimate 2000/01 $	Variance Over/(Under)	Expl. No.
Total Salaries and Employee Benefits	630.2	12.00	597.1	33.1	
Total Other Expenditures	73.5		74.6	(1.1)	

Table FI.6

Angling Licence Sales and Revenue, 1990-91 to 1999-00

Year				Resident/Manitoba – Sr. Conservation			Total: Resident of Manitoba	
				Number	Fee $	Revenue $	Number	Revenue $
1997-98				7,878	5.61	36,615.58	7,878	36,615.58
1998-99				8,700	5.61	40,315.00	8,700	40,315.00
1999-00				8,935	5.61	41,411.35	8,935	41,411.35

Year	Resident of Canada-Regular			Resident of Canada-Conservation			Total: Resident of Canada	
	Number	Fee $	Revenue $	Number	Fee $	Revenue $	Number	Revenue $
1990-91	74,321	10.00	706,757.00	72,030	5.00	324,521.50	146,351	1,031,278.50
1991-92	69,250	10.00	658,506.00	76,790	5.00	345,969.50	146,040	1,004,475.50
1992-93	64,496	10.00	613,343.50	77,358	5.00	348,538.50	141,854	961,882.00
1993-94	58,833	12.50	706,624.50	73,227	7.50	512,963.00	132,060	1,219,587.50
1994-95	57,783	12.50	694,044.00	77,716	7.50	544,498.00	135,499	1,238,542.00
1995-96	55,235	12.50	663,355.00	76,844	7.50	538,289.00	132,079	1,201,644.00
1996-97	52,158	12.50	626,742.00	75,081	7.50	526,422.50	127,239	1,153,164.50
1997-98	51,859	14.02	676,760.18	73,603	8.41	546,849.23	125,462	1,223,609.41
1998-99	57,381	14.02	748,238.62	84,000	8.41	623,386.00	141,381	1,371,624.62
1999-00	57,567	14.02	750,690.37	84,938	8.41	630,356.58	142,505	1,381,046.92

Year	Non-Resident of Canada – Regular			Non-Resident of Canada- Conservation			Total: Non-Resident of Canada	
	Number	Fee $	Revenue $	Number	Fee $	Revenue $	Number	Revenue $
1990-91	11,483	30.00	338,827.50	18,170	15.00	263,626.50	29,653	602,454.00
1991-92	9,667	30.00	285,279.50	18,381	15.00	266,725.50	28,048	552,005.00
1992-93	9,316	30.00	274,922.50	19,868	15.00	288,316.00	29,184	563,238.50
1993-94	8,770	32.50	280,744.00	20,742	17.50	352,905.50	29,512	633,649.50
1994-95	8,299	32.50	265,668.50	21,906	17.50	372,702.50	30,205	638,371.00
1995-96	7,821	32.50	250,369.50	22,448	17.50	381,856.00	30,269	632,225.50
1996-97	6,840	32.50	218,945.50	21,757	17.50	370,199.50	28,597	589,145.00
1997-98	6,712	37.38	244,557.56	23,406	20.56	458,473.36	30,118	703,030.92
1998-99	7,149	37.38	260,237.62	26,223	20.56	513,312.88	33,372	773,550.50
1999-00	7,192	37.38	261,840.96	27,151	20.56	531,532.56	34,343	793,373.52

Year	Total Regular Licences			Total Conservation Licences			Total Licences	
	Number		Revenue $	Number		Revenue $	Number	Revenue $
1990-91	85,804		1,045,584.50	90,200		588,148.00	176,004	1,633,732.50
1991-92	78,917		943,785.50	95,171		612,695.00	174,088	1,556,480.50
1992-93	73,812		888,266.00	97,226		636,854.50	171,038	1,525,120.50
1993-94	67,603		987,368.50	93,969		865,868.50	161,572	1,853,237.00
1994-95	66,082		959,712.50	99,622		917,200.50	165,704	1,876,913.00
1995-96	63,056		913,724.50	99,292		920,145.00	162,348	1,833,869.50
1996-97	58,998		845,687.50	96,838		896,622.00	155,836	1,742,309.50
1997-98	58,571		921,317.74	104,887		1,041,938.17	163,458	1,963,255.91
1998-99	64,530		1,008,476.24	118,923		1,177,013.88	183,453	2,185,490.12
1999-00	64,759		1,012,531.20	121,024		1,203,300.49	185,783	2,215,831.79

Note:

1. Revenue figures are net (less vendor's commission).
2. Manitoba Fisheries Enhancement Stamp initiated in 1993-94.
3. Resident of Manitoba Senior's Conservation Licences were introduced in 1997-98.
4. Starting with the 1999-2000 season – angling licences will be valid from May 1 – April 30. Licence sale statistics for the 2000-2001 Annual Report will be based the most recent complete season i.e. the 1999-2000 season.

Table FI.7
Fishermen Employed in Commercial Fishery, 1999-2000

	Northern Lakes	Lake Winnipeg	Lake Manitoba	Lake Winnipegosis	Other Lakes	Overall
Summer						
Licence Holders	506	806	80	47	29	1416
Hired Men or Helpers	173	161	72	78	23	500
TOTAL	679	967	152	125	52	1916
Winter						
Licence Holders	165	123	493	175	195	1124
Hired Men or Helpers	106	23	358	133	178	798
TOTAL	271	146	851	308	373	1922
Annual						
Licence Holders	527	822	506	177	198	2153
Hired Men or Helpers	187	161	370	172	185	1063
TOTAL	714	983	876	349	383	3216

Note: Those who fish in more than one area or season, or who fish both as hired men and *Licence* holders, are counted only once in the appropriate Total column. Where hired-man-and-*Licence*-holder duplication occurs, the individual is counted as a *Licence* holder. Therefore, this table does not total horizontally or vertically.

Table FI.8
Commercial Fishing Production (Round kg), Total Value and Employment (Licensed Fishermen Plus Hired Men) 1990-91 to 1999-2000.

	Northern Lakes		Lake Winnipeg		Lake Manitoba		Lake Winnipegosis		Other Lakes		Manitoba Total		
Year	**Weight (kg)**	**$ Value**	**Weight (kg)**	**$ Value**	**Weight (kg)**	**$ Value**	**Weight (kg)**	**$ Value**	**Weight (kg)**	**$ Value**	**Weight (kg)**	**$ Value**	**Employment**
1990-91	2,367,950	2,689,600	5,066,850	8,018,550	1,457,300	2,603,200	950,300	641,650	843,800	1,048,500	10,686,200	15,001,500	3,457
1991-92	3,181,650	4,473,000	5,857,600	12,092,450	3,023,550	4,920,800	2,287,950	1,718,700	1,275,250	1,568,000	15,626,000	24,772,950	3,490
1992-93	2,625,750	4,097,600	4,644,650	11,291,300	1,099,950	2,988,500	879,700	696,400	813,750	1,405,600	10,063,800	20,479,400	3,354
1993-94	1,867,550	2,369,100	4,217,700	7,954,350	710,350	1,580,400	1,074,350	477,000	1,034,150	1,586,050	8,904,100	13,966,900	3,173
1994-95	2,572,500	3,887,600	4,655,500	11,174,800	821,000	2,747,250	775,350	436,400	989,000	1,911,550	9,813,350	20,157,600	3,125
1995-96	3,081,050	5,033,450	4,836,400	12,177,900	2,027,500	3,462,250	1,385,000	659,750	1,195,300	1,555,900	12,525,250	22,889,250	3,345
1996-97	3,339,650	4,290,500	4,312,600	8,864,050	1,344,450	1,840,450	1,635,650	682,500	1,190,800	1,089,350	11,823,150	16,766,850	3,325
1997-98	2,621,550	3,565,750	3,991,600	8,340,050	1,518,000	2,207,800	1,465,050	842,800	915,700	725,050	10,511,900	15,681,450	3,237
1998-99	2,761,800	4,350,500	4,825,600	14,119,350	1,734,450	2,284,800	2,106,550	1,892,650	775,000	1,273,000	12,203,400	23,920,300	2,990
1999-00	3,235,650	5,087,500	5,419,050	16,983,500	1,943,950	2,416,950	2,719,850	2,266,250	778,550	951,850	14,097,050	27,706,050	3,216

NOTE: *Total value includes both Initial Value and Final Payment.*

Table FI.9

Commercial Fishing Production (Round Weights kg) by Area and Total Value By Species, 1999-2000.

Species	Northern Lakes		Lake Winnipeg		Lake Manitoba		Lake Winnipegosis	
	Summer	Winter	Summer	Winter	Summer	Winter	Summer	Winter
Bass	Trace[2]		41,600	3,850		Trace[2]		
Carp	50		64,200	12,450	369,550	84,050	29,500	54,750
Catfish			50					
Goldeye	3,950	200	1,150	2,850			50	100
Maria	Trace[2]		Trace[2]	2,450				
Mullet	626,700	84,350	264,550	33,550	262,550	689,250	735,100	1,202,350
Perch	1,200	200	75,700	21,650		83,650	50	32,700
Pickerel	557,150	48,600	2,654,150	220,700		307,500	164,250	62,800
Pike	695,200	141,000	214,200	18,800		86,900	37,000	361,000
Sauger	5,850	900	683,850	236,200		57,500	Trace[2]	50
Trout	40,300	250						
Tullibee	96,600	17,450	150	50				150
Whitefish	833,850	81,850	737,000	129,900		3,000	13,350	26,650
Total	2,860,850	374,800	4,736,600	682,450	632,100	1,311,850	979,300	1,740,550

	Other Lakes[1]		Total Production			Total Value $[3]		
Species	Summer	Winter	Summer	Winter	Total	Summer	Winter	Total
Bass			41,600	3,850	45,450	43,150	4,300	47,450
Carp	19,150	18,900	482,450	170,150	652,600	147,300	51,000	198,300
Catfish			50		50	50		50
Goldeye		200	5,150	3,350	8,500	16,300	10,500	26,800
Maria			Trace[2]	2,450	2,450	Trace[2]	1,150	1,150
Mullet	36,750	271,700	1,925,650	2,281,200	4,206,850	534,600	751,700	1,286,300
Perch		11,050	76,950	149,250	226,200	373,650	749,400	1,123,050
Pickerel	1,250	140,050	3,376,800	779,650	4,156,450	14,658,600	3,118,500	17,777,100
Pike	9,950	189,200	956,350	796,900	1,753,250	771,100	666,300	1,437,400
Sauger	Trace[2]	50	689,700	294,700	984,400	2,245,900	956,700	3,202,600
Trout			40,300	250	40,550	35,750	150	35,900
Tullibee		1,800	96,750	19,450	116,200	57,150	12,100	69,250
Whitefish	47,100	31,400	1,631,300	272,800	1,904,100	2,021,900	478,800	2,500,700
Total	114,200	664,350	9,323,050	4,774,000	14,097,050	20,905,450	6,800,600	27,706,050

[1] Includes Buffalo Lake , Chitek Lake, Cross Bay, Dauphin Lake, Inland Lake, Mire-Proulx Lakes, Pelican Lake, Red Deer Lake, Reedy Lake, Sisib-Pickerel Lakes, Lake St. Martin, Strong Lake, Swan Lake, Waterhen Lake, William Lake.

[2] Small amount.

[3] Total $ value includes both initial value and final payment.

NOTE: Commercial fishing statistics for 2000-2001 fiscal year were not available in time to be included in this report. They will appear in the annual report for the next fiscal year.

Northern Fishermen's Freight Assistance

The Northern Fishermen's Freight Assistance (NFFA) program assists marginal commercial operations by partial subsidization of transporting certain species from lakeside tc Winnipeg. Fishers pay the first 20¢/kg of freight, the Province pays the next 35¢/kg, and fishers pay any costs over 55¢/kg. Eligible species are whitefish, pike, lake trout, perch, goldeye, and tullibee. Subsidy payments to fishers are issued weekly by Freshwater Fish Marketing Corporation (FFMC) on behalf of Manitoba. Fisheries allowed to opt out of FFMC are paid by the Branch at season end.

To ensure expenditure does not exceed the $250,000 cap set in 1991, fishers receive an initial payment, usually 70% of their estimated eligibility. They receive final payment at fishing-year end. While a full 30% final payment may not be possible when production is high, a final payment higher than 30% may occur in low-production years. NFFA paid about $135,000 to 407 fishers for summer season. Payments to about 100 fishers for winter season will likely be about $35,000.

Due to significant increase in transportation costs, fishermen asserted that, without increased NFFA funding, many of them, particularly those in remote northern areas, could not afford to fish. They also sought price support for suckers, similar to Saskatchewan's program. The Department undertook a major program review, and additional funding for the NFFA program was approved for 2000-01 and 2001-02. The new program funding cap is $410,000.

Table FI.10
12-3(e)-5 Northern Fishermen's Freight Assistance

Expenditures by Sub-appropriation	Actual 2000/01 $	Estimate 2000/01 FTE	Estimate 2000/01 $	Variance Over/(Under)	Expl. No.
Total Other Expenditures	410.0		250.0	160.0	

Fisheries Enhancement Initiative

The Initiative funds projects that protect or improve fish stocks or habitat. 24 diverse projects were approved.

Conservation Districts led a number of proposals. West Souris Conservation District is improving conditions on Pipestone Creek through stream bank rehabilitation and riffle placement. They are also involved in an inventory of Antler, Gainsborough, Graham and Jackson Creeks that will assist in future management decisions. Pembina Valley District hosted a workshop on bank stabilization techniques. Intermountain District implemented these techniques at a site on Valley River near Dauphin. On Stony Creek, near Neepawa, which supports a self-sustaining brook trout population, Whitemud District, stakeholders, and landowners are improving sections impacted by land management practices.

Manitoba Purple Loosestrife Project obtained funding to increase angler awareness of aquatic nuisance species and use of live bait. The Fort Whyte Center is constructing an aquatic field station. Manitoba Fly Fishers Association is developing a trout fishery in South Lake, Birds Hill Park.

In the north, Cheemawawin Cree Nation received funds to determine if Cedar Lake fish stocks are separate stocks or from a common stock, through DNA analysis of 250 walleye samples. If they are the same, they can modify management to rehabilitate and sustain stock and income from fishing. Nelson House Fisherman's Association will operate a spawn camp to reverse decline of walleye stocks in Notigi Lake. This activity will permit determining where pickerel spawn and may provide another source of northern pickerel spawn.

Table FI.11

12-3(e)-6 Fisheries Enhancement Initiative

Expenditures by Sub-appropriation	Actual 2000/01	Estimate 2000/01		Variance Over/(Under)	Expl. No.
	$	FTE	$		
Other Expenditures	0.0		0.0	0.0	
- Grants/Transfer Payments	349.8		350.0	(0.2)	
Total Other Expenditures	349.8		350.0	(0.2)	

Chapter 10

Wildlife Branch

The Branch manages wildlife resources to conserve species and ecosystems, based on preservation of biological diversity and principles of sustainable development. The Branch protects and enhances habitat on Crown and private lands. Resources are allocated to maximize long-term social, economic, and environmental benefits. The Branch co-operates with a wide range of clients and client groups to promote commitment to conservation and to realize optimum benefits from interaction with wildlife. The Branch represents wildlife interests in departmental, provincial, national, and international initiatives for migratory wildlife, game and fur species, problem wildlife, protected spaces, conservation, sustainable development, biodiversity, federal-provincial harmonization, and species at risk. The Branch ensures that wildlife programs reflect the cultural, subsistence, social, and economic values of the people of Manitoba, consistent with policy and procedure directives and legislation.

Administration

The Section provides legislation, policy, and procedure to direct and co-ordinate programs and ensure effective performance. The Section co-ordinates spending estimates, ensuring expenditures are within budget, and provides payroll, financial, and operational support, and administration of wildlife permits required under federal and provincial statutes.

Grants were made to: Churchill Northern Studies Centre (research on wildlife and resource management); Manitoba Trappers Association (trapper education courses and trapper involvement in fur management); Fur Institute of Canada (humane trap development and public information); Manitoba Habitat Heritage Corporation (North American Waterfowl Management Plan and Critical Wildlife Habitat Program), and Ducks Unlimited Canada (Oak Hammock Marsh Interpretative Centre).

A Wildlife Aboriginal Liaison Manager position was established to assist co-operative wildlife management programming with the Aboriginal community. This will ensure consideration of Aboriginal values and requirements in the work of the Branch, and other Conservation agencies. The employee will develop co-operative education and communication initiatives, including displays, brochures, and website, and a *Bridging the Gap Initiative* with Aboriginal and non-aboriginal hunters in a hunting heritage approach.

The Branch chaired the Crown Land Classification Committee (CLCC), an interdepartmental approach to land use rationalization and adjudication of Crown land sales. The Director assisted the Oak Hammock Marsh Interpretative Centre as member of the Board of Directors.

The Director represents provincial interests on various local, national and international wildlife initiatives: board member of Wildlife Habitat Canada, International Association of Fish and Wildlife Agencies, Western Wildlife Directors, Canadian Wildlife Directors, Arctic Goose Joint Venture, Circumpolar Polar Bear Management Committee, Canadian Co-operative Health Centre, Canadian Biodiversity Committee, Mississippi Flyway Council, Manitoba Habitat Heritage Corporation, and Prairie Habitat Joint Venture.

Wildlife Branch Website

The website, at http://www.gov.mb.ca/natres/wildlife/index.html, created last year, was expanded and enhanced. It provides an overview of who we are, what we do, and how to reach us.

Legislation

Three Ministerial Regulations were amended to change hunting seasons. *Use of Wildlife Lands Regulation* was amended to withdraw all or parts of fifteen Wildlife Management Areas from development, to meet requirements of the Protected Areas Strategy. *Designation of Trapping Areas Regulation,* rewritten to reflect contemporary management requirements, and a new regulation, *Designation of Wildlife Lands Regulation,* consolidating five Order-in-Council Regulations designating areas under ***The Wildlife Act,*** were submitted for approval. Two Ministerial Regulations, on forms and eligible conservation agencies under ***The Conservation Agreements Act,*** were amended. Amendments to ***The Wildlife Act,*** to confirm Ministerial authority to make Regulations on hunting of captive native and exotic wildlife, received assent and awaits proclamation. Consultation with Canada respecting the proposed ***Species at Risk Act*** continued.

Wildlife Permits

The Branch is responsible for permits required under ***The Wildlife Act*** and ***The Endangered Species Act.*** Subject to federal guidelines, CITES (Convention on International Trade in Endangered Species of Wild Flora and Fauna) *Export Permits* are also issued under the ***Wild Animal and Plant Protection and Regulation of International and Interprovincial Trade Act.*** Revision to reflect computer system conversion continued.

Table WI.1
Wildlife Permits Issued, 2000

Provincial Permits	
Dead Wild Animal Possession Permit (educational)	12
Dead Wild Animal Possession Permit (personal)	189
Applications Denied (Dead Wild Animal)	59
Disabled Hunter Permit (discharge firearm)	19
Disabled Hunter Permit (permanent)	124
Disabled Hunter Permit (temporary)	46
Applications Denied (Disabled Hunter)	13
Dog Trainer's License (non-resident)	3
Dog Training Club License	2
Exotic Animal Import Permit	1
Field Trial Permit	1
Live Exotic Animal Possession Permit	1
Live Wild Animal Possession Permit	11
Power Boat in Marsh Permit	3
Serve Meat of Wild Animal Permit	4
Species At Risk Permit	7
Use Vehicle Off Designated Route Permit	1
Wild Animal Capture Permit	8
Wild Animal Export Permit	480
Wild Animal Import Permit	20
Wild Animal Kill Permit	2

Table WI.1
Wildlife Permits Issued, 2000

Provincial Permits	
Wild Animal Part Dealer Permit	15
Wildlife Scientific Permit	16
Total (Provincial Permits):	**1037**
Federal Permits:	
CITES Export Permit	1568
Total (Federal Permits):	**1568**

Table WI.2
12-3(f)-1 Administration

Expenditures by Sub-appropriation	**Actual 2000/01**	**Estimate 2000/01**		**Variance Over/(Under)**	**Expl. No.**
	$	**FTE**	**$**		
Total Salaries and Employee Benefits	375.6	8.00	364.1	11.5	
Other Expenditures	440.1		414.4	25.7	
- Grants/Transfer Payments	207.0		207.0	0.0	
Total Other Expenditures	647.1		621.4	25.7	

Big Game and Fur Management

Hunting

Standardized opening dates and season lengths, earlier announcement of seasons, and simplified regulations, improved service to the public. 3,000 Resident Youth Hunting Licence Packages, developed to encourage young hunters (ages 12-17), were purchased.

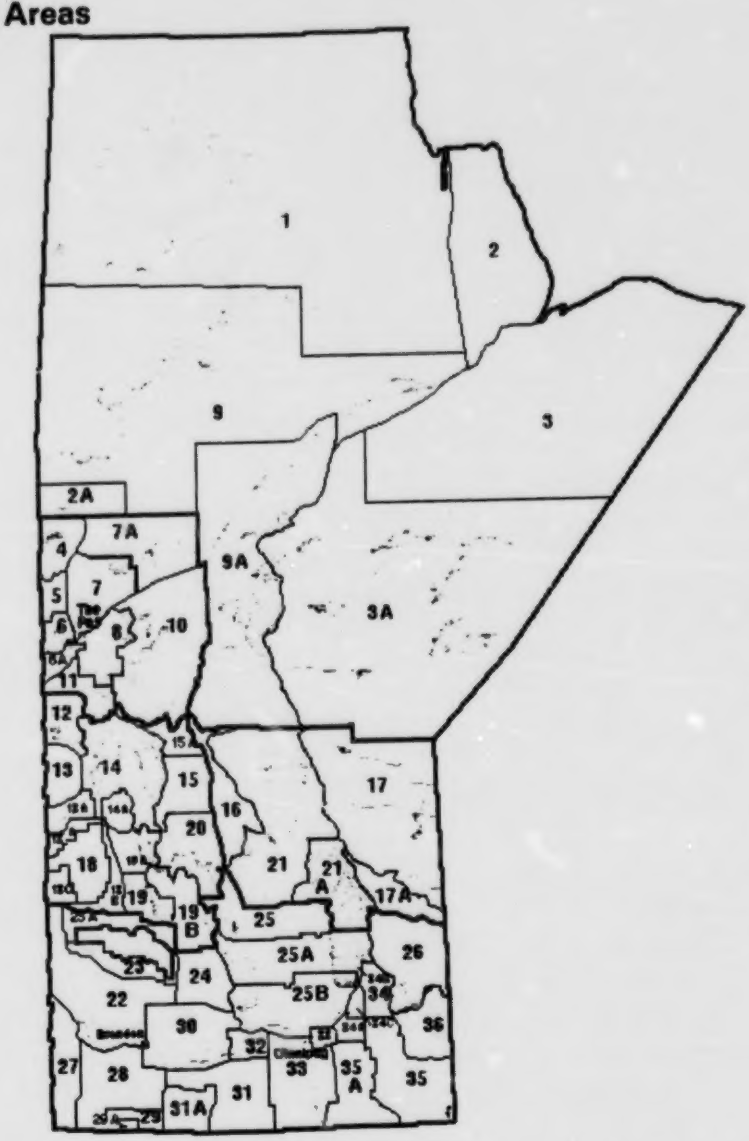
The Department is leading provision of quality education and practical experience to young people interested in hunting. Introduction of the *Resident Youth Hunting Licence* (for deer and gamebirds) and Waterfowler Heritage Days are examples of this commitment. Expansion of these programs continues, with support by many groups and individuals, including Manitoba Wildlife Federation, Delta Waterfowl Foundation, Keystone Agricultural Producers, and Manitoba Lodges and Outfitters Association.

Gamebirds

Excessive snow goose numbers continue to damage fragile Arctic nesting grounds. Using special conservation provisions of ***Migratory Birds Convention Act***, the spring snow goose season was expanded to all Game Hunting Areas, with allowance for Sunday hunting.

More information on gamebird conservation programs can be found in *Waterfowl Management* section.

Figure 6.
Game Hunting Areas



White-tailed Deer

Harsh winter conditions in the west increased winter mortality. Densities remained moderate across much of the south. Eastern Region herd continued to recover from high winter mortality in 1995-96 and 1996-97, benefiting from mild winters of 1997-98, 1998-99 and 1999-00, and buck-only bag limit. The buck-only season in southeast was cancelled this year, reverting to an any-deer limit. High numbers inside Perimeter Highway and in Red River Valley, where hunting is limited or prohibited, continue to substantially damage speciality crops and landscape plantings. Consequently, a *Second Deer Licence* was available south of Winnipeg.

Rifle season license sales to residents were 31,100 (31,499 in 1999-00). Resident bowhunting license sales continued as previously at 2,927 (2,865 in 1999-00). Resident muzzleloader license sales increased to 6,990 (6,309 in 1999-00).

Non-resident/non-Canadian license sales increased for muzzleloader, to 194, and archery, to 292. Sales decreased for non-resident/non-Canadian rifle, to 1,142.

Black Bear

Populations are stable or growing, indicating that current hunting intensity (3,200 hunters) is sustainable. Bears conflicted with human activities on numerous occasions, and some control measures were necessary.

About 1,251 residents hunted bear, similar to 1999-00 (1,243), considerably below long-term average. Non-resident harvest is managed by the outfitter license quota system. Non-resident hunters increased to 1,985, due to more hunters in more remote areas. Quality experiences and a reputation for big bears with a range of colour phases attract non-residents.

Direct measurement of populations is difficult. Consequently, indirect methods are used to detect changes in densities, such as field observations by staff, hunters and outfitters, hunter success rates, and sex-ratio and age distribution of harvest. A computer model, using hunter harvest data and biological samples from hunters and outfitters, was used to evaluate harvest levels to ensure sustainability. Female reproductive tracts show litter size, and premolar teeth provide age, together indicating age at onset, and frequency, of reproduction.

Concern about orphaned cubs prompted a complete assessment of spring hunting. A mathematical model was developed to estimate the number of cubs orphaned as a result of the spring season. Findings to date indicate there is a very low incidence of cub orphaning due to hunting.

Moose

Populations and calf crops continue to be good-to-excellent in Turtle Mountain, Duck Mountain, Riding Mountain, parts of Central Region, and much of the north. Densities in GHA 21 continue to respond to habitat rejuvenation following the large 1989 fire and have stabilized at high levels. In north Interlake, Northwest Region, Spruce Woods-Shilo and parts of southeast, numbers remain below optimum levels despite excellent habitat and limited licenced hunting. Discussion of long-term harvest strategies with First Nations continued.

A total of 5,522 resident and 147 non-resident moose licenses were sold, similar to 1999-00 (5,644 resident and 136 non-resident).

Elk

Province-wide, numbers decreased slightly. Duck Mountain and Porcupine Hills herds remain below target because of increased hunting opportunity and the elk capture program undertaken in late 1990's. A reduction in numbers, particularly in the Swan River Valley area, was required to address concerns about excessive damage to farm produce. It is anticipated that a slight reduction in hunting pressure over the next two years will allow recovery in Duck Mountain population to meet goals. Spruce Woods population has increased to about 550. South Interlake herd remains higher than its population goal of 1,000; increased hunter opportunity for this population was implemented for 2000-01. Riding Mountain area population decreased slightly to between 3,300 and 3,700, as part of actions to address Bovine Tuberculosis (TB) concerns.

A total of 4,685 elk licences were sold for rifle, archery, and landowner seasons. A Management Strategy is being developed for each herd. Interlake Elk Management Strategy has been completed.

Caribou

Populations of barren-ground caribou are stable or increasing, while coastal herds (Cape Churchill and Penn Island ranges) are stable. 634 resident and 161 non-resident licenses sold. The non-resident season in GHA 1 benefits communities and lodges in the north, where employment opportunities are limited. Guiding, outfitting, and accommodations are primary income-generating services with spin-offs to other sectors.

Disease in Wildlife

There is some evidence of low-level presence of tuberculosis in Riding Mountain area, detected in cattle and elk. This has implications for agriculture, wildlife management, and human health. All agencies with jurisdiction agree to ongoing co-operation in addressing the situation.

Monitoring tuberculosis in wild ungulates in Riding Mountain area completed a third year. An elk harvested near the Riding Mountain, south of Grandview, tested positive. Including this animal, only four elk have been found infected, out of over 1,000 samples examined. These infections are considered to be related to infections in cattle. Manitoba Conservation, Manitoba Agriculture and Food, Canadian Food Inspection Agency, and Parks Canada, the main program partners, jointly drafted an *Action Plan for Bovine TB Management in Manitoba* which provides for expanded surveillance and disease containment activities.

Chronic Wasting Disease is a fatal neurological disease affecting the deer family (cervids), including elk, white-tailed deer and mule deer. It has been found in captive deer and elk in five States and Saskatchewan, and in wild deer and elk in 3 States. The Department kept apprised of containment efforts in Saskatchewan due to concern that infection in wild populations in Saskatchewan could spread into Manitoba.

Non-resident License Allocation Programs

Non-resident deer, moose, bear, caribou, and gamebird hunters spent over $1.5 million for licences and generated over $10 million in economic activity. Allocation of non-resident big-game licences through lodges and outfitters allows adjustment of harvest to maintain sustainability and meet needs of residents. The program is regularly reviewed to ensure that objectives are met. Procedure for allocating non-resident hunting licences was changed to provide First Nations applicants additional opportunity to enter the industry. Development of policies and procedures for allocating non-resident caribou licences will result in sustainable use of barren-ground caribou, and ensure that communities on the fall caribou range receive a proportionate share of the benefits resulting from the hunt. Manitoba Lodges and Outfitters Association, Manitoba Wildlife Federation, and individual outfitters were consulted to identify and address concerns. Major goals are to foster stewardship of wildlife resources and improve the business environment.

Big Game Monitoring

Understanding population dynamics is essential to management. Population changes are detected by comparing data collected similarly over time. Most commonly used methods are:

- Winter aerial inventories to estimate abundance, sex and age composition, recruitment and distribution;
- Mail questionnaires to estimate harvest levels; and
- Biological specimen collection to assess age and reproductive status.

Aerial Surveys

This program depends on financial resources from Wildlife Enhancement Initiative, from revenues paid by hunters. In some years, poor snow conditions (less than 20 cm. on the ground) prevent some surveys being flown, but snow was sufficient in all areas this year. Surveys were:

- GHA 9A, moose. An aerial survey was flown to determine the distribution and population of moose in York Factory Resource Management Area (a block along 60 km of Hudson Bay coastline and 75 km of Hayes River) and seven inland plots (averaging 10 km^2). The point estimate for this Resource Area was 109 moose. None were found on inland plots. The York Factory Resource Management Board (RMB) financed this survey.

- GHA 22, deer. The entire GHA (10,533 km^2) was stratified on basis of sample units of 20 km^2 each. Total counts were made of 60 sample units, representing 11% of the area. The population estimate was 20,088 (± 19%) deer, or 1.91/km^2. The estimated population is 42% higher than the last survey, flown in 1987.
- GHA 25A, deer. The entire GHA (3.967 km^2) was stratified using fixed-wing aircraft on basis of sample units of 20 km^2. Thirty-two sample units (15% of the area) were searched intensively by helicopter. The population estimate was 4,130 (± 14%), or 1.04/km^2.
- Hecla Island, moose. 160 km^2 was systematically searched, counting 28 (0.17 animals/km^2), 12% more than 1999 but 53% below the recent high of 59 (1996) and 82% less than the all-time high of 152 animals (1986). This survey was financed by Parks and Natural Areas Branch.

Hunter Questionnaires: 1999-2000 Big Game Seasons

Responses from 1999-00 *Questionnaire* were received and analyzed. Over 6,000 questionnaires were mailed to all resident hunters in Draw Licence seasons, and over 24,000 questionnaires were sent to a sample of residents in non-draw seasons. About half of hunters replied, from which resident harvest was estimated:

Table WI.3
Resident Hunter Big Game Harvest 1999-00

Season	Licences Sold	Estimated Harvest
Deer rifle	31,499	22,323
Deer archery	2,865	1,041
Deer muzzleloading	6,309	3,582
Deer (antlerless) second	6,617	4,136
Moose rifle	3,514	734
Moose (conservation)	131	28
Moose (draw)	1,611	290
Moose archery	188	11
Moose (draw) archery	102	29
Elk (draw)	2,641	461
Elk (draw) archery	1,010	105
Elk (draw) landowner	691	266
Black Bear	1,243	333

Questionnaires mailed in 2000-01are being received, entered and analyzed, to be reported in 2001-02.

Biological Specimen Collection

The Section collects biological samples from hunters, who provide teeth and reproductive tracts from black bear. Crests are offered in appreciation for submission of teeth, and belt buckles for female reproductive tracts. These rewards contribute to a submission rate of 60% of (estimated) bear harvest. Analyses of 1999 specimens:

- 281 female and 648 male pre-molars were aged: average age for females was 7.90 years (oldest aged was 31.6 years) and for males, 5.83 years (oldest 29.5 years).
- 226 reproductive tracts were examined, identifying 2.29 cubs as the average litter for mature females (6+ years) and 2.0 cubs for 2-5 year olds.

Problem and Captive Wildlife

This unit develops policies, legislation, and programs to address wildlife/human conflicts and use of wild animals taken alive.

Beaver taken under the Problem Beaver Control Program increased to 8,114 from 7,171, largely due to continuing decline in commercial trapping. $121,700 was spent to remove beaver from municipal and private land and certain northern community areas. Greatest number of problems occurred in municipalities around Duck Mountain and Riding Mountain National Park. Program review last year determined results were not as desired; new directions are being developed.

Wildlife Crop Damage Compensation Program, administered by Manitoba Crop Insurance Corporation, reimburses producers for bear damage to beehives and produce, for deer, elk, and bear damage to crops and property, and for livestock loss or injuries from predators such as wolves. Compensation for big game damage is above-average due to severe conditions in December. About $350,000 was paid for deer, elk and bear damage to standing crops and stored hay. Compensation for waterfowl damage increased slightly to $582,000 due to inclement harvest conditions in the west in fall. Damage to leafcutter bee operations totalled $12,000 and damage to honey operations increased to $86,000 from $53,000.

This was the third full year for the Predator/Livestock Damage Compensation Program. Predator claims increased to 576 from 474, and compensation paid increased to $193,000 from $148,000.

Number of wolf complaints decreased to 153 from 238. Wolf problems were most prevalent in Western, Central and Eastern Regions. Field staff used mechanical devices to remove problem animals, since use pesticides was suspended.

The Department and Manitoba Agriculture and Food terminated capture of elk and the Elk Seedstock Program last year. However, elk captured last year (and their offspring) are being held, pending final results of tuberculosis testing. Agriculture and Food continued testing and elk will not be dispersed to producers until free of disease.

Under the Regulation permitting falconry, five individuals hold permits to possess raptors (two red-tailed hawks, one European goshawk, one red-tailed/ferruginous hybrid and one goshawk). Falconers may hunt game birds and waterfowl, having obtained a hunting licence.

At-large wild boar control continued due to concerns for human safety, habitat destruction, and damage to property and crops. Over 250 wild boar are estimated to be at-large in five principal areas: Rural Municipality of Brokenhead, Interlake, Assiniboine River Valley west of Brandon, Shell River Valley, and Pulp River. As authorized by ***The Wildlife Act***, and at request of municipalities, the Branch Director declared Rural Municipalities of Grahamdale, Armstrong, and Shell River to be Wild Boar Control Areas where any resident can legally shoot wild boar at large, under certain conditions. The Department initiated field projects to determine feasibility of new control methods, and is considering declaring the entire province a Wild Boar Control Area. The Branch continues to receive and assess reports of boar at-large.

Canada geese staging inside Perimeter Highway in fall numbered over 125,000. The Department received many calls from the public concerned about property damage and health risk from goose droppings. Winnipeg Airport Authority is concerned about threat to air traffic. The Branch formed an Urban Goose Working Group that is investigating the problem and identifying goals and objectives for a management plan.

Enacted to enable regulation or prohibition of confined hunting, *The Wildlife Amendment Act* raised concerns from agricultural producers, game farmers, and the pet industry. The Department conducted public meetings to enable stakeholder input into Regulations.

Furbearer Management

The program sustains populations of furbearers, promotes optimum harvests and economic, social, and cultural returns to trappers and their families. Furbearer production, the number of each species sold by trappers, is monitored. The program encourages humane trapping and promotes education and public understanding of furbearer management and the fur industry.

A final draft of *Furbearer Management Policy and Procedure Directives* was submitted for approval by the Minister, after circulation for comment to the Manitoba Trappers Association, 64 Local Fur Councils, other trapper organizations, Resource Management Boards, Manitoba Keewatinowi Okimakanak, First Nations, and Manitoba Metis Federation. This is intended to replace the 1988 *Fur Policy*. It recognizes and provides opportunity for trappers' input into decision-making and management. It ensures that local practices and traditional ecological knowledge will be important considerations.

Harvest levels generally decreased. Arctic fox production declined 89% (to 77); this species is at the bottom of its 3-4 year population cycle because of near-absence of prey, especially lemmings. Large increases occurred in two species: muskrat by 21% to 38,427, and coyote by 32% to 2,401. Beaver and marten continue to be the most important: 15,602 marten and 21,012 beaver were taken.

Trapper licence sales declined from last year by 11% to 5,882 licences (4,239 *Open Area Trapping Licences*; 1,643 *Registered Trapper Permits*).

Fur prices strengthened as Russia, a major buyer of wild fur, began to purchase luxury items. China, Korea, and Japan continued to be the strength of the wild fur market. North Americans continued purchasing large quantities of beaver. Only beaver and marten showed price declines.

A two-day workshop for community-based resource staff from the Department and First Nations Resource Management Boards, supported by the Department, Fur Institute of Canada, and Indian and Northern Affairs Canada, was held to provide information about European Union-Canada *Agreement on International Humane Trapping Standards*. Additional workshops for aboriginal trappers are planned for next year. Posters outlining implementation of the *Agreement*, including photos of the various approved traps, were prepared and translated into Cree and Ojibway. Posters were distributed to Local Fur Councils and offices of First Nations and Resource Management Boards. Staff are working with Fur Institute's Trap Research and Development Committee on humane trapping devices and manufacturing standards; nine devices have been approved for eight species.

Over $89,000 was secured from sources to produce an educational video for trappers on the EU-Canada *Agreement*. The video, produced by Indian Cultural Education Productions, was broadcast nationally on Aboriginal Peoples Television Network. Copies will be distributed in trapping communities in their languages: Cree, Dene, English, French, and Ojibway.

In Trapper Education Program workshops, 155 students graduated at Minnedosa, Split Lake, Cross Lake, Oxford House, Pine Creek/Duck Bay, Barrows, The Pas, Tramping Lake and other northern communities. Several of these workshops were organized and conducted by Manitoba Trappers Association. Special workshops, at request of the Rural Municipalities of Rossburn and Brokenhead, provided trapper training to their staff and others to deal with problem furbearers. Tramping Lake and Wallace Lake field stations were used for outdoor education and cultural purposes by students from Keewatin Community College Resource Management program, Sagkeeng First Nation, and Hollow Water First Nation.

The Department introduced a *Youth Trapping License/Permit*, whereby graduates, aged 12-17, of the Trapper Education Program were awarded a *License* or *Permit* for free, joining other jurisdictions in eliminating fee-payment for young trappers. An art contest was initiated for this age group to create a new crest for graduates of the Education Program. The contest is part of educating this age group about furbearer resources. The winner will be announced in the 2001-02 *Trapping Guide*.

As part of Regulations review, the numerous legal descriptions of Open and Registered Trapping Areas were consolidated into a single Director of Surveys Plan, making identification of boundaries easier for managers and trappers.

Bears constitute a very minor part of fur harvest. Taking bears with any snare device was prohibited, and bears in the den may no longer be taken under a *Trapping Licence*. Therefore, under this *Licence*, bears may be taken only with a firearm.

The *Trapping Guide* was made more informative and provided a more detailed map of trapping areas. Preliminary steps were taken to include the humane trapping devices poster in the next *Guide*, translated into the languages of trapping communities.

Production data by Registered Trapline Section is now available to Regional and District offices through their computers, providing ready access by local staff and more timely response to inquiries from trappers, the public, and for regional planning.

Table WI.4
12-3(f)-2 Big Game and Fur Management

Expenditures by Sub-appropriation	Actual 2000-01 $	FTE	Estimate 2000-01 $	Variance Over/(Under)	Expl. No.
Total Salaries and Employee Benefits	569.1	10.79	592.2	(23.1)	
Other Expenditures	219.5		195.4	24.1	
- Grants/Transfer Payments	89.9		89.9	0.0	
Total Other Expenditures	308.4		323.4	24.1	

Table WI.5
Fur Statistics, Year Ending August 31st, 2000

Species	Quantity	Average Price $	Production Value $	% of Total Value	Royalty Per Pelt	Royalty $
Badger	87	30.91	2,689	0.1	0.50	44
Bear	947	213.35	202,042	10.3	1.00	947
Beaver	21,012	23.83	500,716	25.5	0.50	10,506
Coyote	2,401	32.54	78,129	4.0	1.00	2,401
Ermine	2,067	2.83	5,850	0.3	0.05	103
Fisher	1,541	29.63	45,660	2.3	1.00	1,541
Fox, Blue	0	0.00	0	0.0	0.50	0
Fox, Cross	118	11.77	1,389	0.1	0.50	59
Fox, Red	1,156	20.86	24,114	1.2	0.50	578
Fox, Silver	21	11.79	248	0.0	0.50	11
Fox, White	77	19.70	1,517	0.1	0.50	39
Lynx	275	54.28	14,927	0.8	1.00	275
Marten	15,602	44.69	697,253	35.4	1.00	15,602
Mink	5,632	19.50	109,824	5.6	0.50	2,816
Muskrat	38,427	2.38	91,456	4.6	0.05	1,921
Otter	1,815	81.93	148,703	7.6	0.75	1,361
Raccoon	1,225	9.41	11,527	0.6	0.50	613
Squirrel	4,376	1.20	5,251	0.3	0.05	219
Wolf, Timber	225	97.79	22,003	1.1	1.00	225
Wolverine	18	228.14	4,107	0.2	2.50	45
Total			$1,967,404			$39,305

Notes: 1. The Department's Fur Year runs from September 1 - August 31. Starting with the 1995-96 Annual Report, statistics which relate to the Fur Year will be based the most recent complete Fur Year. The 2000-01 Annual Report will contain information on the 1999-2000 Fur Year Ending August 31, 2000.

Table WI.6

Trappers and Value of Wild Fur Production, Fur Year Ending August 31, 2000

Year	Open Area Trappers (#)	Registered Trapline Trappers (#)	Estimated Production Value ($)
1989-1990	6,447	2,219	1,563,805
1990-1991	5,030	1,730	1,125,373
1991-1992	5,495	2,018	1,681,582
1992-1993	5,851	1,870	1,518,850
1993-1994	5,546	1,818	2,694,978
1994-1995	5,611	1,993	2,539,052
1995-1996	6,336	1,865	2,639,452
1996-1997	4,827	1,975	3,715,834
1997-1998	5,315	2,049	3,306,968
1998-1999	4,750	1,856	2,037,022
1999-2000	4,276	1,669	1,967,404

1. The Department's Fur Year runs from September 1 – August 31. Starting with 1995/96 ***Annual Report***, statistics which relate to the Fur Year were based on the most recent complete Fur Year. The 2000/01 Annual Report contains information on 1999-2000 Fur Year, ending August 31, 2000.

Table WI.7

Hunting Licences Sold, 2000-2001

Type of Licence	Fee $	Number Sold	Revenue $
Game Bird			
Resident of Manitoba	19.63	12,699	237,228.37
Non-resident (Canadian)	60.75	701	41,995.75
Non-resident (Non-Canadian)	116.82	5,689	658,166.04
Wild Turkey			
Resident of Manitoba	20.56	653	12,843.68
Moose			
Resident of Manitoba	44.86	5,387	238,534.82
Resident of Manitoba - Conservation	35.51	272	9,428.08
Non-resident (Canadian)	255.14	14	3,566.96
Non-resident (Non-Canadian)	304.67	136	41,299.12
Elk			
Resident of Manitoba	44.86	4,693	210,527.98
Caribou			
Resident of Manitoba	40.19	488	19,612.72
Resident of Manitoba - Second	93.46	147	13,738.62
Non-Resident (Non-Canadian)	304.67	112	33,707.37
Non-Resident (Non-Canadian) - Second	700.93	49	33,596.64
Black Bear			
Resident of Manitoba	25.23	1,251	30,446.73
Non-resident (Canadian)	80.37	27	2,164.99
Non-resident (Non-Canadian)	172.90	1,998	340,890.70
Deer			
Resident of Manitoba	30.84	41,777	1,247,961.68
Resident of Manitoba - Second	16.82	776	12,300.32
Non-resident (Canadian)	116.82	759	88,143.56
Non-resident (Non-Canadian)	172.90	1,672	286,729.20
Youth Hunting Licence Package			
Resident of Manitoba	9.35	3,133	26,287.55
Total Licence Sales			
Resident of Manitoba		71,276	2,058,910.55
Non-resident (Canadian)		1,501	135,871.26
Non-resident (Non-Canadian)		9,646	1,395,076.67
Total		82,423	3,589,170.88
Replacement	Variable	149	1,309.00
Grand Totals		82,572	3,590,479.88

Notes:
1. Revenue figures are net (less vendor's commission)
2. Non-Resident Caribou Licences are valid for both Canadian and Non-Canadian Hunters and are included with the Non-Resident (Non-Canadian) totals.
3. Second Caribou Licences were introduced for Residents and Non-Residents in 1999.
4. Resident Conservation Moose Licences are issued as a 2 licence/1 tag package (272 licences = 136 packages).
5. A Youth Hunting Licence Package for Residents of Manitoba was introduced in 1999.

Table WI.8

Hunting Licence Sales and Revenue

	Game Bird		Big Game		Wildlife Certificates		Totals	
Year	No. Sold	Revenue $	No. Sold	Revenue $	No. Sold	Revenue $	No. Sold	Revenue $
1991-92	32,207	693,786.00	60,972	1,475,456.00	59,632	449,633.00	152,811	2,618,875.00
1992-93	27,034	791,592.00	60,229	1,830,776.50			87,263	2,622,368.50
1993-94	23,251	747,913.00	59,712	1,843,791.50			82,963	2,591,704.50
1994-95	23,331	793,088.50	62,485	2,009,832.00			85,816	2,802,920.50
1995-96	24,511	848,222.00	67,883	2,210,534.00			92,394	3,058,756.00
1996-97	24,789	890,609.50	71,955	2,208,504.00			96,744	3,099,113.50
1997-98	23,446	1,056,020.70	63,668	2,402,913.96			87,114	3,458,934.66
1998-99	23,816	1,112,930.77	59,743	2,423,557.18			83,559	3,536,487.95
1999-00	22,096	1,070,616.01	67,058	2,610,746.10			89,154	3,681,362.11
2000-01	19,742	950,233.84	62,830	2,640,246.04			82,572	3,590,479.88

Note:

1. $5.00 per licence for wildlife enhancement was introduced in 1997/98.
2. Second licences for Resident and Non-Resident Caribou hunters was introduced in 1999-2000.
3. Youth Hunting Licence Package for Residents of Manitoba was introduced in 1999-2000.

Table WI.9

Wildlife Licence Revenues, 2000-2001

Type of Licence	Revenue $
Hunting Licences	
Game Bird Licences	$937,390.16
Wild Turkey Licences	$12,843.68
Black Bear Licences	$373,502.42
Replacement Licences	$1,309.00
Caribou Licences	$100,655.35
Deer Licences	$1,635,134.76
Elk Licences	$210,527.98
Moose Licences	$292,828.98
Youth Hunting Licence Package	$26,287.55
Total – Hunting	$3,590,479.88
Commercial Licences	
Trapper Licences *	$33,673.00
Fur Dealer Licences *	$1,900.00
Tanner Licences *	$90.00
Taxidermist Licences *	$2,490.00
Shooting Preserve Licences	$550.00
Dog Trainer Licences	$540.00
Game Bird Farm Licences	$560.00
Amphibians and Reptiles Licences	$200.00
Total – Commercial	$40,003.00
Total Revenue	$3,630,482.88

* Reflects revenue for the 1999-00 Fur Year ending August 31,2000.

Habitat and Land Management

The Section develops policies, plans and programs to secure, protect and enhance wildlife habitat on Crown and private land, and is responsible for the network of Wildlife Management Areas (WMAs), Public Shooting Grounds, Refuges and Special Conservation Areas. It leads the Branch's input to integrated resource management and environmental reviews, and sustainable development strategies. The Section directs and co-ordinates planning, delivery, monitoring, and evaluation of bird management activities including waterfowl and upland game bird hunting, and co-ordinates the Manitoba Partners in Flight Program for conservation of land birds. It also links the Branch with Manitoba Habitat Heritage Corporation habitat enhancement programs.

Wildlife Sustainable Development Strategy

Analysis of *Wildlife Sustainable Development Strategy* public consultations was concluded and the *Strategy* revised to accommodate public comment. The revised *Strategy* has been forwarded to the Manitoba Round Table for Sustainable Development.

Wildlife Management Area Program

Work was initiated on a wildlife lands systems plan. This program develops province-wide goals and objectives, policy development, evaluates existing wildlife lands, primarily Wildlife Management Areas, and identifies lands for addition to the system.

Progress was made in preparing a management plan for Cape Churchill WMA. Public consultations were completed and meetings held to develop a strategy on demand and supply of sand and gravel in Churchill area. A draft management plan was prepared; the final document is expected early next year.

WMAs continued a major role in Network of Protected Areas, in protecting additional areas to program standards. Consultations with stakeholders led to nomination of 14,396 ha. in 10 WMA's.

Habitat was enhanced in several Central Region WMAs, supported by Rocky Mountain Elk Foundation.

Standard boundary signs were produced for various WMAs and Refuges.

Wildlife Management Areas Maintenance

Wildlife Enhancement Initiative funded maintaining and enhancing WMAs, including prairie enhancement in Narcisse WMA, forage plot development in Basket Lake WMA, designated-trail orientation signs, reconstruction of Whitewater Lake boardwalk, and weed control.

Land Management and Use

The Section reviewed over 300 land-use proposals for wildlife habitat impacts, an increase from 200 last year. These included applications for *General Permits* and *Leases*, sales, and exchanges on Crown land, Treaty Land Entitlement and Grand Rapids Forebay land selections, and municipal development plans and by-law amendments. Policy proposals were reviewed for impact on wildlife and habitat, land management and use.

Environmental Impact Assessment

Over 150 *Environment Act* proposals or pre-clearances were reviewed, the same number as last year. Most were highway upgrades, water-treatment facilities, and crop protection warehouses. Others included such developments as waste-disposal areas, bulk storage facilities, golf courses, irrigation ponds, utility corridors, hog and cattle operations, and town water supplies. Annual operating plans for Louisiana Pacific Canada, Tolko Manitoba and Tembec/Pine Falls Paper were reviewed.

General Extension

In addition to extension associated with each project, program displays were staffed at Delta Marsh Birding Festival, Manitoba Grazing School, Fall Fair, Association of Manitoba Municipalities Annual Convention, Conservation Districts Annual Meeting, Annual Aboriginal Winter Festival, Canadian Waterfowl Festival, Manitoba Agriculture Days, and Royal Manitoba Winter Fair. Presentations and field tours were given to groups.

Project WILD

Project WILD is an environmental education program emphasising wildlife, sponsored by the Canadian Wildlife Federation and implemented under agreement with each province's wildlife agency. Teachers are required to attend an in-service training workshop, usually conducted jointly by a wildlife specialist and a teacher trained as a workshop facilitator. Project WILD activities are identified for use in specific outcomes for the Grade Four Science curriculum.

About 100 educators were trained to use Project WILD materials in five sessions by staff and volunteers. Most attendees were university education students. Of particular note were two sessions held for the first time at the Brandon University Northern Teacher Education Program facility at Thompson. One of the latter workshops focused on the new ***48 Degrees Below Zero*** Project WILD workbook, featuring wildlife ecology and adaptations to winter. Manitoba was instrumental in developing this workbook.

To complement educational system changes, promotion continued of linkages between Project WILD, the Pan-Canadian Science document, and new science curricula. A preliminary review of program delivery was initiated jointly with Manitoba Education, Training, and Youth.

National Wildlife Week

National Wildlife Week (April) was co-ordinated with Canadian Wildlife Federation. Staff chaired the Manitoba Working Group, comprising conservation groups and wildlife agencies. Material developed by the Working Group included 30,000 bilingual doodle posters (with corporate sponsors) and poster kits (purchased from CWF), distributed to schools, libraries, municipalities, the Department, and Conservation Districts.

The theme, *Migration...An Incredible Journey*, focused on migration and habitat protection. The Working Group sponsored *Spiels on Wheels*, whereby members of the Working Group and conservation organizations presented to over 5,500 students in schools across the province. A mall display was held in Portage la Prairie.

The Working Group began planning another speaker presentation series around the 2001 theme, *My Community Includes Wildlife, Does Yours?*. This reflected a change to more community-based, as well as school-based, wildlife conservation and education themes.

6th Prairie Conservation and Endangered Species Conference

Manitoba Conservation and Manitoba Cattle Producers Association co-chaired the 6th Prairie Conservation and Endangered Species Conference (Winnipeg). Plenary sessions followed by five concurrent workshops and a poster session on each of the three days attracted about 400 researchers, landowners, students and government policy-makers from three Prairie Provinces and northern United States.

Waterfowl Management

Migratory bird populations are assessed annually for status, productivity, habitat conditions, and harvest. The Department co-operates with numerous outside agencies in conducting annual waterfowl breeding pair surveys in agricultural areas and northern boreal regions.

The 1990s generally were wetter than the 1980s. Waterfowl populations responded well to increase in water and most species exceeded both the ten-year and long-term averages. Duck populations in south continue to do well with many species at or near record levels. In recent years, the fall flight of ducks is estimated to be above long-term average. With healthy populations of ducks, hunting regulations remained unchanged. Restricted seasons have been maintained only for canvasback and redhead ducks.

Canada goose populations in southern Manitoba continue to prosper and expand their range. Escalating numbers of geese in urban areas have increased problems. More information can be found in the *Problem and Captive Wildlife* section.

Concern about expanding snow goose populations continued and the Department increased hunting opportunity in spring and fall.

Outbreaks of botulism continued to be a concern, particularly on Whitewater Lake in southwest. An outbreak occurred on Whitewater Lake for the sixth consecutive year, but this year it was small. Bird losses have varied, between a few thousand and several hundred thousand. Both waterfowl and migrating shorebirds are affected. The Botulism Working Group, formed in 1998, continues to examine causes and treatment strategies for avian botulism on the prairies.

Upland Game Bird Management

Spring surveys indicate that most upland gamebird populations remained relatively stable in recent years. Weather during nesting and rearing periods was favourable: mild winter and early spring followed by warm summer. Precipitation was variable, but adequate for forage production in most areas.

Sharp-tailed grouse populations showed increases in most Regions. Ruffed grouse remained stable in Central Region, but declined somewhat in Northwest and Eastern Regions. Ruffed grouse populations typically fluctuate between high peak numbers and relative scarcity over an approximate 10-year cycle.

Wild turkey populations continue to prosper, largely due to available shelter and food from expanded livestock operations. Where wild turkeys create problems for the public, they are trapped and relocated. As the turkey population is increasing, a fall season was introduced, and was well received by hunters, providing opportunity to those unable to hunt in spring.

The Department continues to improve managing upland game bird populations through cooperative habitat initiatives and other programs with private organizations.

Partners in Flight Manitoba

Progress on the Partners in Flight (PIF) Landbird Conservation Plan included identification of high-priority species for conservation using the PIF Canada priorization system. Habitat profiles and conservation issues for priority species were also outlined.

Staff attended a PIF Prairie Potholes Working Group meeting (Edmonton) to develop a landbird conservation plan for prairie potholes, and a PIF National Working Group meeting (Hull).

PIF Manitoba continues on the Twice-over Rotation Grazing Demonstration Project Committee, providing direction on bird monitoring. One year of data has been gathered. PIF Manitoba provided input to the final year of Manitoba Habitat Heritage Corporation's Agro-woodlot assessment of riparian biodiversity in southwest.

PIF Manitoba Newsletter was produced, including articles on North American Bird Conservation Initiative, PIF planning, and PIF National Working Group update. The Newsletter will be produced biannually.

PIF Manitoba, assisted by Manitoba Naturalists Society, co-ordinated Manitoba's Nocturnal Owl Survey, compiling results, and sending out about 100 survey packages for 2001. *National Guidelines for Monitoring Nocturnal Owls* were adopted. Results from the first year were encouraging, with good detection rates and surveyor participation.

Waterbird Conservation

Following North American Bird Conservation vision, a *Waterbird Conservation Plan for Prairie Potholes* was initiated, led by Canadian Wildlife Service. Manitoba staff attended a meeting (Saskatoon), and continued work on the *Plan* which includes herons, grebes, loons, rails, terns and gulls.

Heritage Marsh Program

The Program targets marshes known to be of extraordinary importance to wellbeing of wildlife and humans. There are nine Heritage Marshes: Saskeram, Summerberry, Delta, Oak Hammock, Rat River, Grants Lake, Proven Lake, Lidcliff, and Dog Lake.

The Department continues supporting research on condition and future of Delta Marsh. Recognized locally and internationally as an important prairie wetland, this marsh is undergoing significant negative change, partly due to regulation of water levels on Lake Manitoba. Fisheries and vegetation studies are also supported by Delta Waterfowl and Ducks Unlimited.

Capital improvements at Oak Hammock Marsh and Whitewater Lake WMAs included dyke improvements, construction of a shorebird nesting island, and repair of interpretative facilities. Safety concerns about dyke slumping resulted in a major repair by placing rock on dyke edges. The Department continued supporting research into botulism causes and feasibility of control on Whitewater Lake.

The range of purple loosestrife continues to expand, threatening important marsh ecosystems. The Department assists the Purple Loosestrife Control Program for research and management through expansion of biological control programs.

Critical Wildlife Habitat Program

This cost-shared Program, involving Manitoba Habitat Heritage Corporation and other agencies on a project-specific basis, identifies, preserves, and manages critical habitats, especially native grasslands, and habitats of unique/rare/endangered species. The Program supports stewardship initiatives, resource inventories, land management, including native prairie management, and extension. The Department and MHHC fund many of these programs; others are supported by other agencies.

Tall Grass Prairie Preserve

Efforts were made to locate and map sites of plant species uncommon to this Preserve in southeast. *Viola pedatifida* (crowfoot violet) was found on two sites in North Block. Monitoring continued, for orchids, insects, songbirds and rare plants, and of management prescriptions. The Monitoring Avian Production and Survivorship Station also continued. This North America-wide program provides critical, long-term data on population and demographic parameters for many land birds (134 birds of 24 species were banded).

A Master's Degree study continued to confirm identity of two sphinx moths believed to be principal pollinators of the endangered western prairie fringed orchid. A second Master's project, to study response of a disturbed site to burning, fertilizer application, and seeding of native species, was delayed by flooding.

Management included mowing fence lines, preparation for fall burns, and maintenance at the interpretive site. Permanent vegetation plots and photo stations were monitored. These are sampled every few years to determine overall health. Efforts continued to locate, sample, and map sites of leafy spurge and St. John's wort. Biological control sites were monitored.

A rotational grazing project continued on 64 ha, including monitoring of effects on western prairie fringed orchid. Baseline data were collected for use in subsequent years.

Prairie Day, highlighting native plants and animals, was again held by residents. An education program for four school grades continued to be well-received and included field trips. Guided tours were offered through July and August.

Preserve activities were supported by the Canada Habitat Stewardship Program for Species at Risk, Nature Conservancy of Canada, and Manitoba Naturalists Society.

Mixed Grass Prairie Projects

Three projects continued in mixed grass prairie (MGP) region in the south: inventory, grazing demonstration, and stewardship.

Comprehensive inventory concentrated on Carberry area south of Trans-Canada Highway. 169 sites (including all habitat types) were inventoried totaling 9,895 acres. 121 MGP sites were inventoried (5,580 acres). 54 sites were good quality MGP, with grades of C or better (3,223 acres). Funding was provided in part by Canada Habitat Stewardship Program. Green Team staff worked on this project. Parks and Natural Areas Branch was assisted with management plans for Spruce Woods Provincial Park

Six grazing demonstration sites were monitored (vegetation changes and livestock weight-gains) to illustrate economic and wildlife benefits of rotational grazing. Bird monitoring was implemented on three sites. Abundance and species diversity of birds on season-long pastures was found to be not measurably different than that on rotation pastures. At one site, there appeared to be a difference in favour of rotation. It is recommended that the bird monitoring be viewed as a long-term project, and that this level of monitoring continue for 10 years. Partners include Manitoba Habitat Heritage Corporation, Manitoba Agriculture and Food, Ducks Unlimited, Prairie Farm Rehabilitation Administration, Canadian Wildlife Service, Manitoba Cattle Producers Association, Environment Canada (EcoAction 2000), and three Conservation Districts.

The Mixed-grass Prairie Stewardship Project is a broad-based public awareness initiative, implementing a private land stewardship program to promote protection of remaining prairie, and conserving sites through voluntary landowner agreements. Fact sheets, press releases, and newspaper articles continued to be produced for the project. Presentations were made at Prairie Conservation and Endangered Species Conference and annual meeting of Conservation Districts. Partners include Seton Centre, MHHC, MA&F, DU, PFRA, CWS, Special Conservation Fund, and EcoAction 2000.

Urban Habitat Stewardship Project

This co-operative effort involves many agencies and groups engaged in habitat preservation in the Capital Region. A steering committee, comprising local, provincial and national conservation organizations and three levels of government, supervises.

Capital Region Habitat Steering Committee began production of *Naturescape*, an educational package to help organizations and individuals transform small urban and rural areas, including backyards, into habitat, with information on native species and backyard project ideas.

Natural Resource Inventories in Community Pastures

Inventory included survey of flora and fauna in Lakeview and Westbourne Prairie Farm Rehabilitation Administration Community Pastures. Fieldwork included establishment and survey of plots for songbirds and plants, and recording other wildlife occurrences. Two hundred and fifty plant species and 81 bird species were observed, including 10 vascular plant species and eight birds that are rare to uncommon in Manitoba. A report was completed and will be used in Pasture management planning. Financial assistance came from PFRA and Canadian Wildlife Service.

Forest-Wildlife Guidelines

The first iteration of *Forest Management Guidelines for Wildlife in Manitoba* (1989) enhanced communication and co-operation between Wildlife and Forestry Branches and the forest industry, and facilitated integration of forest and wildlife management activities.

A detailed review began in 1996 to incorporate current science and experience. Concerns and issues raised by industry and staff, scientific literature, input from Regional Wildlife Managers, and information from other jurisdictions, contributed to the second version. The *Guidelines* were redrafted into 2 documents; one is a set of operational directives, while the other is a more-detailed document for planning. Preparation took longer than anticipated; another discussion with wildlife staff will be followed by circulation to other Branches and industry.

Manitoba Forestry Wildlife Management Project

This project was initiated (1991) to develop computer models to predict impact of forest management practices on supply and quality of wildlife habitat. Partners included Wildlife Habitat Canada, Tolko Manitoba Inc., Pine Falls Paper Company, Louisiana Pacific Canada Ltd., the Manitoba Model Forest, and Canadian Forest Service.

Separate and shared habitat requirements of over 200 species in the boreal forest zone were identified. Nineteen indicator species were selected for computer modelling, each of which is representative, in terms of shared environment, of a range of wildlife. For example, moose habitat encompasses habitat requirements for 62% of other wildlife species in the boreal zone.

Literature-based habitat supply models were developed for the 19 species and, as field data becomes available, the models may be changed according to a protocol agreed to by the partners. The models can be used to develop habitat suitability maps for boreal forest zone. Resource managers can use these, along with other technologies, to guide long-term forest management plans over large forested areas.

Pileated woodpecker habitat use data collected two years ago is being analyzed using new forest resource inventory. Changes to the habitat suitability index model will follow the established protocol.

The project is being reviewed since major funding is required to make the models compatible with the new Forest Resource Inventory, expected to come on-line over the next few years.

Hudson Bay Coastal Region Ecological Inventory Project

This Project gathers wildlife and vegetation data in the Hudson Plain and Southern Arctic Ecozones, for environmental assessment and monitoring by Manitoba and Canada. This will be essential to ascertaining the impact of developments, such as a hydro line to Nunavut or a northern road system, and to initiate mitigative measures. It may also prove useful in determining impact of climate change.

Second-year fieldwork inventoried small mammals and plants at Hubbart Point on the Caribou River delta and at North Knife River delta. There was a crash of small mammal populations in the north, resulting in only one specimen being captured in over 800 trap nights. Plants collected are deposited at the University of Manitoba Herbarium. Mammal specimens were placed in Manitoba Museum collection. Two reports were produced.

Partners in this project included Manitoba Museum of Man and Nature, Manitoba Hydro, Environment Canada, Churchill Northern Studies Centre, and Parks Canada. Part of the study area falls in the area of the York Landing First Nation Resource Management Board, who participated in discussions on project details, and have indicated a willingness to become a partner.

Table WI.10
12-3(f)-3 Habitat and Land Management

Expenditures by Sub-appropriation	Actual 2000/01 $	Estimate 2000/01 FTE	Estimate 2000/01 $	Variance Over/(Under)	Expl. No.
Total Salaries and Employee Benefits	639.4	12.00	711.6	(72.2)	
Other Expenditures	124.0		152.5	(28.5)	
- Grants/Transfer Payments	645.0		645.0	0.0	
Total Other Expenditures	769.0		797.5	(28.5)	

Biodiversity Conservation

The section provides information and services to sustain natural biological diversity, including maintenance and growth of a biodiversity information database. Activities include systematic and peer-reviewed assessment of conservation status of all wildlife, including plants. The database provides an efficient one-stop source of expertise and information on biodiversity. Establishing the database allowed Manitoba to join an international network of biodiversity centres, the Association for Biodiversity Information.

Endangered Species Advisory Committee

Staff prepare wildlife species status reports for Endangered Species Advisory Committee, which advises the Minister on matters pertaining to *species at risk*. One meeting was held and status reports were reviewed and revised. Priority species for review will include those assessed nationally by Committee on the Status of Endangered Wildlife in Canada.

Federal-Provincial Initiatives under *Accord for the Protection of Species at Risk in Canada*

Participation on international and federal-provincial working groups and committees implements the commitment to the *Accord* and the *Canadian Biodiversity Strategy*.

1. The Committee on the Status of Endangered Wildlife in Canada (COSEWIC). Manitoba is a voting member of this national committee that designates species *at risk*. Staff review and assess species status reports, enabling contribution to the national designation process. The proposed Canada *Species at Risk Act* (*SARA*) will legally establish COSEWIC. Manitoba contributed to restructuring COSEWIC and its procedures accordingly. The review process incorporated a new World Conservation Union-based classification system.
2. The Committee on the Recovery of Nationally Endangered Wildlife. This recovery program for species at risk was redesigned to better meet *Accord* requirements. Manitoba participates on the national recovery working group, which drafted *Towards a Renewed National Recovery Strategy: Re-defining the Processes, Responsibilities and Products*. Under *SARA*, three documents will initiate and guide action for each endangered or threatened species: *Response Statement*, *Recovery Strategy*, and *Recovery Action Plan*.
3. *Report on the General Status of Wildlife in Canada*. In 1998, Canadian Endangered Species Conservation Council requested that federal and provincial/territorial governments cooperate to assess and report on general status of wildlife (including plants) by August 2000. A federal/provincial working group was established to complete this project. The Branch and Conservation Data Centre participated effectively by

systematically reviewing and assessing general status of plants and animals. The *Report*, to be released in April 2001, is to be updated every 5 years. The number of species assessed is expected to grow with each *Report*. Considerable resources are required but results will apply to programs and *The Endangered Species Act*.

4. Biodiversity Convention Office. Manitoba participates on a Federal-Provincial-Territorial Biodiversity Working Group which initiated a report to Wildlife Ministers on an *Agenda for Collaborative Action* on furthering implementation of Canadian Biodiversity Strategy. Implementation priorities include:
   - Biodiversity science agenda, including bioinfomatics;
   - Reporting on status and trends in biodiversity, including monitoring;
   - Alien invasive species; and
   - Eco-citizenship, including stewardship.

A program on Alien Invasive Species was initiated to addressing significant threats to biodiversity.

Information Management

The section responded to 543 information requests, using the Biological Conservation Data (BCD) system. Requests came from federal and provincial governments, consultants, The Nature Conservancy, universities, and others (organizations, media, industry, individuals). Numerous requests were for environmental impact assessments. Part of BCD is available for live queries on the Internet at www.gov.mb.ca/natres/cdc.

Although it is difficult to count queries made specifically to the database, the website received thousands of hits (Figure 7). A contract was awarded to better integrate biodiversity information into the Branch's website.

New species range maps were produced for status evaluation by Endangered Species Advisory Committee.

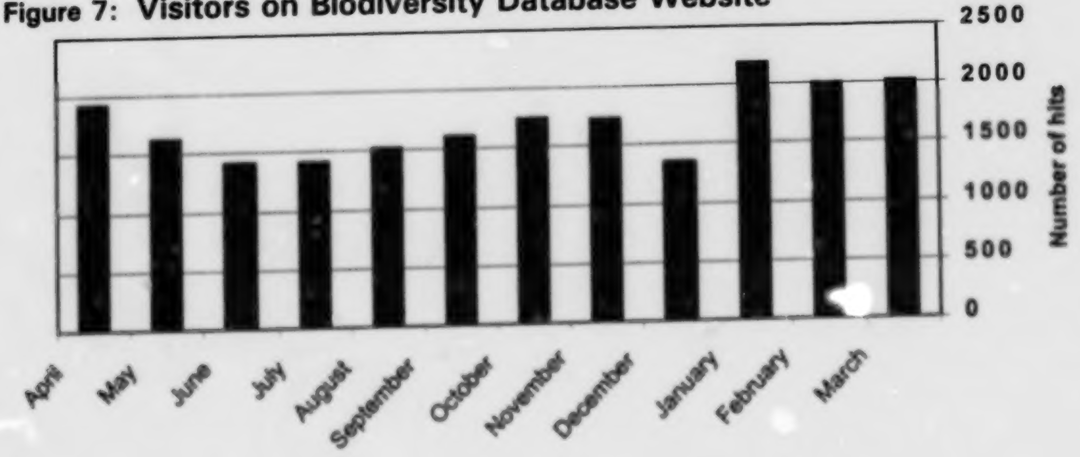
Annual exchange with Association for Biodiversity Information updated BCD with data from other centres in their information network. Data exchange occurred with ABI-Canadian Section.

Table WI.11
Status, Biological Conservation Data System

Information Type	Plant	Animal	Community	Other[1]	Total
Number of Element Occurrences[2]	1,272	1,569	67	439	3,347
Elements Tracked Provincially[3]	2,794	1,198	174	8	4,174
Provincially Ranked Elements[4]	2,254	810	174	0	3,064
Managed Areas[5]					448
Contacts[6]					223
Source Abstracts[7]					1,838

1. Includes elements such as waterbird colonies, and snake and bat hibernacula.
2. A specific example of a plant, animal or vegetative community at a specific geographic location.
3. The Element Provincial Tracking database allows information to be gathered on plant, animal, community and other elements.
4. Provincial plant, animal or community element ranks to help prioritize conservation efforts.
5. A recognized land unit with some degree of protection or management such as Wildlife Management Area, Voluntarily Protected Area, Provincial or National Park.
6. Knowledgeable individuals or organizations.
7. Information source about a plant, animal, community, or managed area (e.g., book, article, thesis, photograph).

Figure 7: **Visitors on Biodiversity Database Website**



Botany/Ecology

Rare Plant Surveys

Six rare plant species were surveyed in the southwest, creating new records and confirming historic records. New records of other rare plants, including western silvery aster (*Aster sericeus*), were documented.

Botanical inventory work continued for Hudson Bay Coastal Region Ecological Inventory Project.

Rare Species Status Reports

A status report on buffalo grass (*Buchloë dactyloides*) was prepared for the ESAC. COSEWIC status reports were reviewed for COSEWIC meetings in April and November 2000.

Species at Risk Fact Sheets

Five fact sheets were produced on plant and animal species *at risk*: one describing ***The Endangered Species Act***, and detailed sheets on western prairie fringed orchid, small white lady's-slipper, piping plover and loggerhead shrike.

Cooperative Initiatives

Cooperative efforts continued with neighbouring jurisdictions:

1. Hosted a meeting of International Western Prairie Fringed Orchid Working Group.
2. Work continued on two ecoregional planning exercises with Nature Conservancy Canada, The (US) Nature Conservancy, and neighbouring provinces and states.
3. Manitoba and other provinces are cooperating with Parks Canada, Canadian Forest Service, the ABI and others to develop a Canadian National Vegetation Classification, based on existing models used by ABI and its provincial partners.

Zoology

Species conservation status reports were reviewed for COSEWIC meetings and new status reports were written and revised for the Endangered Species Advisory Committee. Research included reviewing COSEWIC-listed species not yet reviewed by the Committee.

An owl monitoring project entered its 16th year. Great gray owl nesting density and reproductive success remained high due to high prey abundance. Of note was continued use of habitat by nesting great grays in a prescribed forest management cut-over in southeast.

A national owl monitoring standard was implemented, generally considered to be easier to manage. Over 100 volunteers participated, completing 59 routes. 206 owls were recorded; northern saw-whet owl was most common.

A University of Manitoba graduate student completed a second field season with staff supervision. Research used owl survey techniques to examine influence of forest fragmentation and slope on distribution in Riding and Duck Mountain areas.

A volunteer-based dragonfly survey continued: over 200 volunteers participated and over 500 specimens were received. Results included at least six new species. Expansion of survey is planned, based on volunteer feedback. Survey data will contribute to dragonfly status assessments. A presentation on the survey was made at 6th Prairie Conservation and Endangered Species Conference (Winnipeg, February 2001).

Nongame and Protected Species Management

The unit handles a wide range of issues affecting many species, including legislation, monitoring, and management plans.

Narcisse WMA Snake Dens

Many Manitobans and non-residents visit these red-sided garter snake hibernacula each spring. Staff interpreters explain the snakes' life history and significance of dens.

A large dieoff occurred in spring 1999; fewer snakes emerged from the three main dens. Numbers have recovered considerably and south den has become the most active (this den was previously largely inactive since skunks often occupied it).

University of Oregon researchers continued studies on snakes, marking over 5,000 near dens, and identifying marked snakes in summer habitat. Researchers estimated the WMA population at 25,000-30,000 snakes.

Adjacent highway traffic kills large numbers. A committee, including area residents and Manitoba Transportation and Government Services, was established to reduce mortality. Manitoba Hydro installed several culverts; snakes using those tunnels were counted. Manitoba Hydro offered to install additional culverts through which snakes can pass; culverts have been obtained and may be installed in June 2001.

Amphibians

Over 200 volunteers continue to assist frog and toad surveys. Leopard frogs continue recovery from dramatic decline in mid-1970s and are now abundant in many marshes. Participation continued (seventh year) in Declining Amphibian Populations in Canada Working Group. Amphibian presentations were made at conferences in Riding Mountain National Park and 6th Prairie Conservation and Endangered Species Conference. A presentation was given to 40 volunteers and staff at Fort Whyte Centre.

Polar Bears

To ensure conservation, Manitoba and Nunavut are developing an agreement to share responsibility for long-term management of Western Hudson Bay population.

Woodland Caribou

A *Woodland Caribou (Rangifer tarandus caribou) Conservation Strategy for Manitoba* was released and distributed to stakeholders. The strategy identified four ranges at risk and priorized research and management initiatives. Radio-collared caribou continued to be monitored; a graduate student (Laurentian University) reported preliminary study results on caribou use in disturbed and undisturbed areas in Kississing-Naosap range.

An integrated woodland caribou/forest management plan, developed with Tembec/Pine Falls Paper, Manitoba Model Forest, and other partners, continues to be implemented in Owl-Flinstone Lakes range (east of Lake Winnipeg). Monitoring of six GPS radio-collared caribou delineates habitat use.

Chitek Lake Wood Bison Project

This bison population continues to reproduce every year since relocation to Chitek Lake, and may be expanding its range. Estimated herd size is over 80 animals, and sixteen calves were observed by aerial monitoring. Five VHF radio collars remain operational, assisting location of animals during flights. A management strategy was discussed with First Nation representatives.

Peregrine Falcon Recovery Project

Two pairs of this endangered species are known to have nested. The pair on Radisson Hotel, Winnipeg, suffered nest failure due to flooding of the nest platform, while the Brandon pair (McKenzie Seeds building) raised four chicks. All suitable nest sites will be monitored in spring 2001. A captive breeding program was initiated with Parkland Mews.

Colonial Waterbirds

Staff contributed to drafts of the *National Colonial Waterbird Conservation Plan*, and participates on National Colonial Waterbird Working Group.

Piping Plovers

High water on Lake Winnipeg and West Shoal Lake limited shoreline habitat. Nesting success was poor in all areas, including West Shoal Lake, Gull Bay sand spit (Walter Cook Special Conservation Area), Clandeboye Bay, and Grand Beach. Water levels, up about five feet on West Shoal Lake, inundated man-made islands and destroyed fencing that protected nesting areas from livestock. The former north Gull Bay sand spit, breached near its base and now an island, is expected to erode quickly; its value for piping plovers will be monitored annually. A spit is growing from the mainland that, as the island erodes, could become nesting habitat. A windstorm that caused considerable erosion on Lake Manitoba's southeast shoreline may provide nesting habitat in future. It is hoped that an island created at Oak Hammock Marsh will attract nesting plovers. The International Piping Plover Survey will take place in 2001.

Breeding Bird Survey

Staff co-ordinate involvement in North American Breeding Bird Survey (BBS). Qualified local volunteers survey 40-50 routes annually during peak breeding season. BBS assesses changes in abundance and distribution of songbirds, especially species not monitored adequately by other surveys. BBS data are recognized as the best, and often the only reliable, long-term indicator of songbird trends. Local and national BBS data reveal that more species are increasing than are decreasing. The data also reveals that certain groups, such as grassland-nesting birds, have undergone significant declines since BBS surveys began in 1966. Efforts to stem these declines include Grassland Birds Monitoring and Management Program, and initiatives by Partners In Flight to reverse declines among grassland and forest birds.

Grassland Species Monitoring and Management

Prairie wildlife suffered greater losses since settlement than any other group. The Grassland Species at Risk Program oversees monitoring and management of grassland species in the south. Target species include those designated as threatened or endangered under ***The Endangered Species Act***, including the burrowing owl, ferruginous hawk, loggerhead shrike, and Baird's sparrow.

The burrowing owl became a flagship species for conservation efforts across the Canadian prairies. Efforts in Manitoba since the mid-1980s focussed on understanding causes for declines, conducting management and reintroductions, protecting critical nesting areas, and securing nests from predators. Despite intensive management efforts in the south, nesting populations continue to decline and verge on extirpation. No nesting pairs were found and there were few reported sightings. In recent years, reintroductions and other more intensive management programs have largely shifted to its Canadian heartland in Saskatchewan. Despite intensive management, nesting populations throughout the Canadian prairies are dangerously low.

Nesting ferruginous hawks returned to Manitoba in 1984, after an absence of nearly 60 years. More widespread protection, enhanced public attitudes towards raptors in general, and provision of sturdy nesting platforms, contributed to increase to over 50 nesting pairs through much of the 1990s. More than three-quarters of nesting pairs use artificial nest platforms (more successful than natural nests as they are in sturdy trees near good hunting areas and away from potential disturbance). Recent decline in ferruginous hawk productivity due to a major decline in main prey (Richardson's ground squirrel or "gopher") resulted in a shift to extreme southwest and nesting population decline to under 40 pairs.

Nesting populations of loggerhead shrike have declined throughout the south and in much of its North American range. Populations in the southwest number in the hundreds, but have declined substantially since the mid-1990s. Most occur in the extreme southwest, with over 60% in a block of six townships stretching from Broomhill to the southwest corner. Nesting success and productivity throughout 1990s has been severely hampered by wet conditions during the breeding season. Banding data revealed unusually low return rates of adults and young, suggesting that mortality on migration and in wintering areas may contribute to the decline.

Although there may be fewer than 30 nesting loggerhead shrike pairs remaining in the southeast, this population received additional attention because it is the endangered eastern (*migrans)* subspecies. Monitoring revealed at least 11 nesting pairs on the northern outskirts of Winnipeg. A Recovery Action Group was formed comprising the Department, Manitoba Cattle Producers Association, Manitoba Hydro, Ducks Unlimited, and other groups, to co-ordinate management. This included stewardship initiatives with several landowners who have nesting shrikes or suitable habitat, as well as public education.

Riverbottom Forest Assessments

Mature elms constitute most overstory in riverbottom forests in the southwest. This habitat is being decimated by Dutch Elm Disease. Although dying trees would normally be replaced by saplings, growth of shrubs and replacement saplings may be hindered by heavy grazing. Wildlife diversity and habitat quality were assessed along grazed and ungrazed segments of Souris and Antler Rivers south of Melita in 1998-2000. The data is being analysed to determine how habitat quality and biodiversity are impacted by various grazing strategies, and to explore potential for co-operative restoration or management of depleted riverbank woodlots.

Table WI.12
12-3(f)-4 Biodiversity Conservation

Expenditures by Sub-appropriation	Actual 2000/01	Estimate 2000/01		Variance Over/(Under)	Expl. No.
	$	FTE	$		
Total Salaries and Employee Benefits	263.0	6.00	321.9	(58.9)	
Total Other Expenditures	86.9		114.2	(27.3)	

Canada-Manitoba Waterfowl Damage Prevention Agreement

Dry fall in central and eastern parts brought early cereal crop harvest, largely complete before large numbers of waterfowl staged in the south. However, spring flooding and fall precipitation delayed crop harvest in west and southwest, contributing to higher-than-average crop damage. The Waterfowl Crop Damage Prevention Program cost about $325,100 of which Canada contributed $151,000.

The program operated two feeding stations, eight Crown land lure crops, and purchased one private lure crop in damage-prone areas. Staff assisted protecting crops by providing farmers with shell crackers, scarecrows and propane scare cannons. A total of 23 scare-cannon depots also set up to provide farmers ready access to scaring equipment.

The program operated under a fifth one-year extension of the *Canada-Manitoba Agreement*. Negotiations for a new five-year agreement continue.

Table WI.13

12-3(f)-5 *Canada-Manitoba Waterfowl Damage Prevention Agreement*

Expenditures by Sub-appropriation	Actual 2000/01	Estimate 2000/01		Variance Over/(Under)	Expl. No.
	$	FTE	$		
Total Other Expenditures	334.2		345.7	(11.5)	

Wildlife Enhancement Initiative

Enhanced Funding

The Initiative continued to support wildlife and habitat management projects with funds from a special impost on hunting licences. Hunter-funded projects included:

- Enhanced, effective program of aerial surveys for effective big game monitoring and setting hunting seasons. The Big Game Monitoring Program, the basis for hunting seasons, became outdated and subject to question by anti-hunting groups. Enhanced funding enabled restoration to one of best in Canada.
- Improved problem bear management near Provincial Parks. Live-trapping and relocating problem black bears is costly and, as this study indicates, may be ineffective. Further gathering and analysis of information may point to the need for other means of resolving bear concerns.
- Support for hunting heritage through research into public attitudes (by University of Manitoba) and development of balanced perspectives on hunting issues. This study, which employed many graduate students, is first of its kind in Canada, and will point the way for providing balanced information to the public on hunting issues.
- Providing enhanced information and service to hunter inquiries about big game and gamebird seasons and opportunities. Every year, large numbers of telephone inquiries are received about where and how to hunt in Manitoba; many from non-residents who bring substantial tourism income. This program provides dedicated (temporary) resources to ensure that these calls are handled courteously and efficiently.
- Fieldwork to assess and control escaped wild boar, to protect wildlife and ecology. In view of deepening concerns about habitat destruction and disease transmission (to wildlife and domestic swine), the Department commenced a control program.
- Support for threatened woodland caribou herds. Delineating habitat requirements for woodland caribou, using tracking by telemetry, and assessing these in light of economic development plans (such as forestry) is essential to survival.

- Maintenance for Wildlife Management Areas. Signs have been posted, trails opened and maintained, and the public informed about these improvements.
- Enhanced public information on Branch website. As the internet becomes increasingly important to gathering and disseminating information wanted by the public, updating and enhancing our website becomes increasingly important to wildlife management.
- Understanding of biodiversity in Hudson's Bay coastal area. Management of wildlife resources in fragile arctic/sub-arctic ecosystems depends upon adequate understanding of species and their interrelationships. This project provide knowledge to facilitate landuse decisions through inventory of plant and small mammal species.
- Support to Canadian Cooperative Wildlife Health Centre, that provides valuable information on wildlife diseases.

Table WI.14

12-3(f)-6 Wildlife Habitat Enhancement Initiative

Expenditures by Sub-appropriation	Actual 2000/01		Estimate 2000/01	Variance Over/(Under)	Expl. No.
	$	FTE	$		
Total Other Expenditures	214.9		225.0	(10.1)	

Chapter 11

Computer Graphics

The unit provides computer-aided design and drafting (CAD), desktop publishing, and geographic information system (GIS) services to the Department. Specialized CAD services include preparing engineering plans for capital works and infrastructure maintenance projects. Desktop publishing involve production of high-quality informational materials for programs, policies, and initiatives. GIS services provide expertise for spatial data analyses and preparation of geo-referenced maps.

The unit received 305 requests for service, of which 296 were completed, 3 were rescinded, and 6 are in progress. Figure 8 shows distribution of staff time among clients.

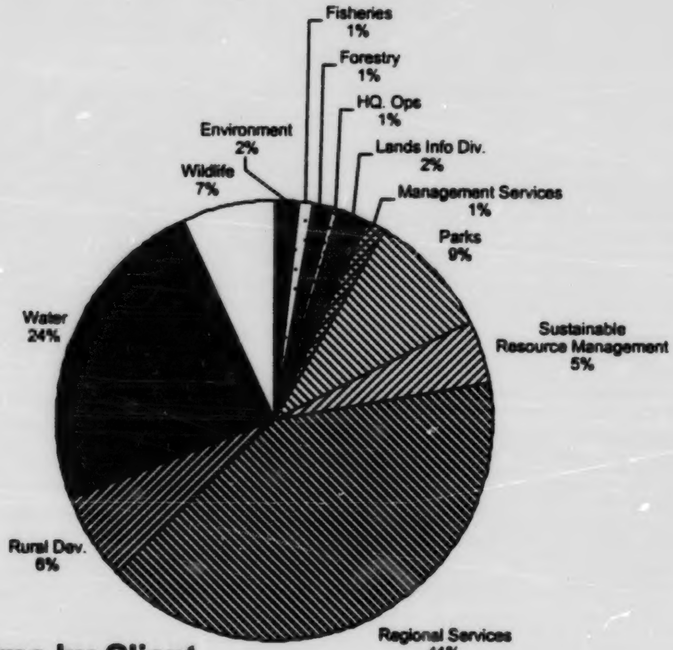


Figure 8: Staff Time by Client

Services included:

- CAD services supported Waterways Maintenance program by preparing engineering plans for the maintenance and refurbishment of water-control infrastructure such as South Buffalo, Main, Meadows, Poplarfield, and other drains. Prepared survey plans for Dominion City and Town of Warren.
- CAD services prepared construction plans for Grand Rapids Fish Hatchery, topographical plans for Oak Hammock Marsh dyke stability, Twin Beach Shoreline Restoration, Hecla landfill site relocation, and Emerson Valley Town Dyke as-built drawings.
- GIS services included research, recommendation, implementation and co-ordination of a province-wide metadata collection and cataloguing system, fully compliant with international standards. Prepared geo-referenced maps to assist in aquifer sensitivity analyses and watershed planning activity for Water Branch.
- Provided Desktop publishing services through complete publication of booklets and brochures including *2001 Hunting Guide, 2001 Anglers' Guide, Forestry Understory Protection and Preharvest Guidelines, Park Explorer Pamphlet, Five Year Ecological Reserve Report, Birds Of Manitoba* brochure, Fisheries and Wildlife *What you told Us Document*, and *Churchill Wildlife Area Management Plan.*

- Prepared storyboards and brochure for public consultation meetings on Shoal Lake Watershed Management planning initiative.
- Continued support to Manitoba Geographical Names Program.
- Prepared summer, winter and seasonal-use maps, and trail and route maps, for Parks and Natural Areas. Designed and produced signage and permits for Park campgrounds.
- Assisted Manitoba Intergovernmental Affairs by preparing maps of Upper Assiniboine River, Pembina Valley, and Whitemud Watershed Conservation Districts.
- Prepared a variety of materials, such as PowerPoint presentations, slides and overheads, for presentations to public meetings and hearings.
- Prepared annual updates of Crown Land Operational Code maps for Crown Land Classification Committee.
- Supported Water Resources Branch's licensing program, by preparing location plans for wells at towns, farms and industrial operations, and mapping services to for drainage licensing.
- Performed miscellaneous tasks such as plotting hydrology data and mean monthly levels of lakes. Designed report covers, charts and graphs for publications. Maintained Department organization charts for Human Resources Branch.

Table CG.1

12-3(g) Computer Graphics

Expenditures by Sub-appropriation	Actual 2000/01	Estimate 2000/01		Variance Over/(Under)	Expl. No.
	$	SY	$		
Total Salaries and Employee Benefits	507.8	12.00	533.9	(26.1)	
Total Other Expenditures	85.0		164.5	(79.5)	

Habitat Enhancement Fund

The Fund provided a grant to the Manitoba Habitat Heritage Corporation, Critical Wildlife Habitat Program component, for protection of habitat by land acquisition, protection agreements (leases), and habitat development.

Table HE.1
12-3(h) Habitat Enhancement Fund

Expenditures by Sub-appropriation	Actual 2000/01	Estimate 2000/01		Variance Over/(Under)	Expl. No.
	$	FTE	$		
Other Expenditures - Grants/Transfer Payments	50.0		50.0	0.0	
Total Other Expenditures	50.0		50.0	0.0	

Chapter 13

Special Conservation and Endangered Species Fund

The Fund promotes principles of sustainable development through grants to community projects which embody close linkage between conservation and the economy. The Fund supported 23 projects, including wildlife rehabilitation, soil management, water management, lake rehabilitation, wetland research, waterfowl habitat preservation, and environmental education.

Table SC.1

12-3(j) Special Conservation and Endangered Species Fund

Expenditures by Sub-appropriation	Actual 2000/01 $	FTE	Estimate 2000/01 $	Variance Over/(Under)	Expl. No.
Other Expenditures	0.0		0.0	0.0	
-Grants/Transfer Payments	354.8		432.1	(77.2)	
Total Other Expenditures	354.8		432.1	(77.2)	

Chapter 14

Land Information Centre

The Centre administers land-related programs pursuant to legislation, policy, land-use plans, and principles of sustainable development. It comprises Administration section (including Manitoba Geographical Names Program and Manitoba Land Related Information System co-ordination), Lands Branch (comprising Crown Lands Operations and Crown Lands Registry), Survey Services, (Land Survey System, Manitoba Spatial Reference Network, and Survey Services Programs), Remote Sensing (including Topographical Mapping), Distribution Centre (including Geographic Mapping), and Land Mapping Services (Cadastral Mapping).

L.I.C. co-ordinates activities under Manitoba Land Related Information System, including production and maintenance of databases for digital, topographic, and township mapping. It maintains the automated Crown Land Information System and Registry of dispositions of Crown land, manages use of Crown lands, surveys land for government, provides remote sensing, thematic mapping, and land parcel services, and administers map and aerial photograph distribution and sales.

Administration

The section provides comprehensive financial, administrative, and personnel services, and the provincial authority for geographical names. The section coordinates activities and programs to meet Departmental goals, prepares annual expenditure and revenue estimates, participates in identifying funding strategies, monitors and reports financial data, and ensures annual expenditures are within budget.

The section participates in departmental and inter-departmental working groups on administrative matters, policy issues, and systems development, and directs review and development of policies for use and disposition of Crown lands, and of legislative and regulatory revision.

Administration prepares and submits *Orders-in-Council* and *Cabinet Submissions* for grant, sale, and exchange of Crown land, setting conditions of transfer, or amending previous Orders, under ***The Crown Lands Act***. *Legislative Orders-in-Council* are prepared to amend regulations under ***The Wildlife Act*** and ***The Forest Act***.

Accomplishments/significant activities:

- Successful implementation of the Dynamics Accounting System, handling the Branch's accounts receivable. Assisted with the implementation of this program for Parks and Natural Areas branch, and Aboriginal and Northern Affairs.
- Completion of an inter-jurisdictional rate survey for land-related administrative fees.
- Review and analysis of 200 parcels of Crown land for which Conservation is assessed *Grants-In-Lieu of Taxes*.

Manitoba Geographical Names Program

The program embraces active preservation of Manitoba culture through its toponymy, on-going development of a geographical names database and associated publications, for recording and disseminating authoritative toponymic data. The program represents interests of all departments and agencies, and provides consultation services to senior management and external clients. Staff represent Manitoba on the Geographical Names Board of Canada and its advisory committees.

Responsibilities include managing historic and current names, maintaining a names database, distributing toponymic information, developing and implementing policies and procedures for geographic naming, establishing and monitoring toponymic quality control in government documents, researching and processing decisions on new and established names, managing the Commemorative Names project, and participating in a student/volunteer training and development project.

Table LI.1

Manitoba Geographical Names Program

		1999-00	2000-01
New geographical name decisions (pending decisions = 177)		35	103
Commemorative Name Certificates issued		66	102
Ministerial letters drafted and distributed with Certificates		75	70
Toponymic quality control tasks		46	87
Responses/inquiries made by:	Correspondence, Fax	417	521
	Telephone	1,177	1,058
	Visitors to Program Office	93	91
	E-mail	1,583	1,936

The new ***Geographical Names of Manitoba***, a 330-page reference work, contains historical and geographical descriptions of nearly 12,000 natural features, settlements, ghost towns, and trails and traces origin of their names. This information is based upon over a century of correspondence by the Geographical Names Board of Canada with railway officials, surveyors, settlers, postal officials, and local historians and is supplemented by field work in more remote areas. Map references indicate date and author of the first map on which a name appears, how it has changed over time, and when it was last used. The volume includes several thousand names in Native languages, many of which were recently recorded, and more than 4,000 places named after war casualties. It is anticipated that this volume will be of interest to historians, geographers, genealogists and the public. Publication was assisted by numerous partners, sponsors and volunteers including Manitoba Culture, Heritage and Tourism and the Millennium Bureau of Canada.

Commemorative Names Project. Staff and volunteers continue to research biographical information from families of the men and women who died in World War II and the Korean War, to provide a record of the lives of individuals for whom features were named.

Other activities included:

- Manitoba's member on the Geographical Names Board of Canada, provided leadership in the proposed naming of a geographical feature after Pierre Elliott Trudeau.
- Manitoba hosted Annual Meetings of the *Geographical Names Board of Canada* and its advisiory committees.
- Production and distribution on demand of a fully searchable digital version of the federal/provincial reference on official names, ***Gazetteer of Canada: Manitoba*** (1999).
- Staff improved availability, quality, and expediency of digital data from the Geographical Names Data Base in such initiatives as Manitoba Land Initiative and GIS mapping projects.
- Participation in Aboriginal Names Working Group of Geographical Names Board of Canada initiated communication with Band Councils to revise procedures for naming/renaming Indian Reserves and geographical features/places on, or partially within, Indian Reserves.
- Staff continued researching and editing a publication honouring Manitoba war casualties after whom geographical features were named.

Manitoba Land Related Information System

The Division coordinates land and resource-based information through the Manitoba Land Related Information System. Main activities include development of a shared base map for the Province and operation of an information-sharing mechanism. The primary upcoming objective is further progress of a photo-based map for the north. This product is valuable for many users, important in administration of Crown Lands, and for support in mining, forestry, land claims, and resource management activities in the north. Increased hydro-electric production and transmission, and development of a road along east side of Lake Winnipeg are major activities. Potential for increased linkages with Nunavut include a road and a power transmission line. To facilitate these activities, a proper base map is an essential first step.

Table LI.2
12-4(a) Administration

Expenditures by Sub-appropriation	Actual 2000/01 $	Estimate 2000/01 FTE	Estimate 2000/01 $	Variance Over/(Under)	Expl. No.
Total Salaries and Employee Benefits	523.6	10.00	526.4	(2.8)	
Total Other Expenditures	704.0		697.8	6.2	

Lands Branch

Crown Lands Operations

The Section administers Crown land and wild rice programs. It works with regional Land Managers to ensure sound management practices and land-use decisions consistent with policies, procedures and legislation. Allocations and dispositions of Crown land include sales, exchanges, leases, permits, reservations, and easements.

Table LI.3
Crown Land Allocations 2000-01

Disposition	New	Renewed
Easements	25	-
General Permits	175	2,641
Miscellaneous Leases	23	444
Sales completed	173	
Sales (mines and minerals) completed	7	
Sales cancelled/rejected	64	
Sales appeal process	12	-
Sales applications in process	119	
Sales in review by CLCC	28	
Vacation Home Leases	17	140
Vacation Home Permits	1	430

Crown land and waterlots are allocated for wild rice culture under authority of **The Wild Rice Act** by *Development* and *Production Licenses*. *Development Licenses* are issued for three years to test-seed and develop a stand. If successful, the *License* can be converted to a *Production License*. There are currently 99 *Development Licenses*, 187 *Production Licenses* and 13 *Block Licenses*.

Treaty Land Entitlement

The unit administers transfer of land to Canada to fulfill obligations under the *Treaty Land Entitlement Framework Agreement*. Using a custom-designed computer GIS system, the Section identifies selection locations, calculates acreages, displays previous dispositions, and reports to Manitoba, Canada, and First Nations. The Section is involved in negotiation and administration of other native land-claim settlements.

Accomplishments/significant activities:

- To date, the Section reviewed 550,000 acres of Crown land selections. The sites have been reviewed by provincial departments and agencies to ensure consistency with various settlement agreements, formulate a provincial position on each site, and hold discussions with Canada and the First Nations to resolve conditions under which the lands could be transferred to Canada.
- Crown lands were transferred to Canada to fulfill Treaty obligations to St. Theresa Point First Nation in full.
- The first two sites under the Treaty Land Entitlement Framework Agreement were transferred to Wuski Sipihk Cree Nation.
- Manitoba approved seven other sites for survey.
- The first Exclusive Use Crown Land Permit was issued to Rolling River First Nation in accordance with the Framework Agreement.
- The Branch participated in an all-party committee to develop agreed forms for transfer of lands between Canada and Manitoba, and worked with other Branches and Regions to develop methods and procedures for delivery of programs to ensure compliance with terms of the Framework Agreement.

Table LI.4

Treaty Land Entitlement Status

First Nation	Entitlement Acres	Crown Acres Selected	Acres Transferred
Barren Lands	66,420	17,647.90	
Northlands	94,084	0.00	
Brokenhead	* 14,481	4,291.16	
Buffalo Point	* 4,039	5,480.98	
Fox Lake	26,391	100.02	
God's Lake	42,600	38,489.82	
God's River (Manto Sipi Cree)	8,725	8,047.05	
Mathias Colomb	234,371	199,514.46	
Nisichawaysihk	79,435	5,604.85	
Norway House	104,784	31,678.55	
Opaskwayak	* 56,068	50,843.39	
Oxford House	35,434	1,543.94	
Rolling River	* 47,112	2,359.15	
Sapatoweyak	* 144,179	120,915.30	
Wuskwi Sipihk	* 58,890	36,470.52	1,275.18
Sayisi Dene	22,372	0.00	
Shamattawa	24,912	19,350.05	
War Lake	7,156	324.15	
York Factory	29,173	10,806.13	
TOTAL	1,100,626	553,467.42	1,275.18
Garden Hill **	44,907.00	14,933.69	39,206.00
Red Sucker Lake**	9,487.00	14,602.95	369.30
St. Theresa Point**	34,413.00	4,656.29	35,185.80
Wasagmack**	11,193.00	962.33	12,511.30
TOTAL	100,000.00	35,155.26	87,272.40

* Includes both Purchase and Crown Lands.

** Not signatories to the 1997 *Framework Agreement*.

Table LI.5

12-4(b) Crown Lands Operations

Expenditures by Sub-appropriation	Actual 2000/01 $	Estimate 2000/01 FTE	Estimate 2000/01 $	Variance Over/(Under)	Expl. No.
Total Salaries and Employees Benefits	467.2	13.00	532.6	(65.4)	
Total Other Expenditures	1,273.1		1,273.2	(0.1)	

Crown Lands Registry

The Section maintains a secure, complete, and accurate record of current and historic dispositions of Crown land and related transactions. This is the only authoritative source of original grants of land and mineral rights from the Crown, including dispositions previously made by the Dominion Government. These records are maintained in the records vault and Crown Land Information System (CLIS). Information dissemination to the Branch, other Departments, Crown agencies, public, and private sectors, occurs through computerized queries, reports, and paper or microfilm searches. CLIS also houses and generates accounting records and transactions for Lands Branch, Parks and Natural Areas Branch, and Aboriginal and Northern Affairs.

Development of a new Land Registry/Management system continues. This system will integrate geographic information system technologies to enhance customer service and assist data entry.

The Section plans to improve delivery through increased interaction with its clients, which include the public, legal firms, consultants, Manitoba Historical Society, Manitoba Industry, Trade and Mines, Manitoba Hydro, Manitoba Agriculture and Food, MTS, Land Titles Offices, Manitoba Intergovernmental Affairs, and Manitoba Aboriginal and Northern Affairs.

Accomplishments/significant activities:

- Successful conversion to a new accounting system and in-house production of invoices required by Parks and Natural Areas, Lands Branch, and Aboriginal and Northern Affairs.
- Installation of a service to replace outdated mainframe access to Crown Land Registry.
- Significant progress towards fulfilment of Cross Lake First Nation Northern Flood Agreement land exchange in participation with Manitoba Justice, Manitoba Aboriginal and Northern Affairs, Manitoba Hydro, Indian and Northern Affairs Canada, and the Cross Lake Cree Nation and their consultants. The creation of a "common record" was made possible through 4-party task force and technical meetings, and thorough reviews of Crown Land records. Survey instructions were issued for six sites selected in 1983.
- Co-ordinated boundary information for Manitoba Land Initiative website.
- Completed conversion of wild rice dispositions to graphic format to enhance management capability in Regions.

Table LI.6

12-4(c) Crown Lands Registry

Expenditures by Sub-appropriation	Actual 2000/01 $	Estimate 2000/01 FTE	Estimate 2000/01 $	Variance Over/(Under)	Expl. No.
Total Salaries and Employees Benefits	186.5	6.00	223.1	(36.6)	
Total Other Expenditures	144.6		219.0	(74.4)	

Survey Services

The Branch administers and enforces ***The Surveys Act (Part II)*** and *The Survey of Mining Claims Regulation*, approves Plans of Survey for disposition of land under ***The Crown Lands Act*** and *The Mineral Disposition and Mineral Lease Regulation* (***The Mines and Minerals Act***), represents Manitoba on matters related to provincial boundaries, provides survey services to other Departments, and maintains the Manitoba Spatial Reference Network and Land Survey System. Public benefits include a secure process for conveyance and reservation of Crown land and rights therein, an economical survey service for acquisition and disposition of land, a survey system for determining property boundaries, and a geodetic survey network for spatial referencing of land-related information.

Land Survey System

The program restores survey monuments, instructs surveyors, examines plans of survey of Crown lands, maintains the province's boundaries, and operates Crown Land Survey Information Centre.

The Branch placed 186 monuments in township and parish-lot systems of survey, provided 36 sets of survey instructions, examined 58 *Plans of Survey*, and responded to 299 information requests. Survey Services provided 365 marker posts to private land surveyors at no charge for marking survey monuments.

Conversion continued of *Plans of Survey*, control survey station descriptions, and surveyors' field notes to electronic format. Scanning has included 7,500 of 10,000 *Plans of Survey*, 2,500 of 5,000 station descriptions, and 50 of 250 field books on file. Off-site records will be considered under Phase II of this initiative.

Information Centre completed 3-year construction of a database for *Director of Surveys Plan-of-Survey Index*. This database holds about 21,000 records, linked to the land survey system. Users can search by *Plan* number or township-and-range description.

Information Centre developed and implemented a Control Survey Database for quick and accurate recovery of control survey information. The Centre developed and will soon implement a Field Book Database for users seeking land-surveyor field notes.

Work continued on a website to provide information via Internet.

Manitoba Spatial Reference Network Program

The program maintains a network of survey monuments whose positions and/or elevations have been determined. Disciplines such as civil engineering, resource management, and land surveying require this network to determine position and elevation of natural and man-made features and related information. This is essential to ensure compatibility of all geomatics, navigation, and other spatial information, to permit exchange and merger, seamlessly and economically.

The Manitoba Spatial Reference Network is integral to Canadian Spatial Reference System, contributing to a reliable national infrastructure for referencing spatial information. Staff continued upgrading mathematical position of network stations, which now comprises 173 primary and about 10,000 secondary stations, with CSRS 1998 co-ordinate values.

A license from Natural Resources Canada was continued to modify, reproduce and redistribute Canadian Geodetic Bulletin Board Service Digital Information, providing 'one-stop shopping' for basic geodetic information.

Staff completed a document on standards, specifications, and guidelines for resource surveys using global positioning system (GPS) technology in support of geographic information systems. GPS determines exact position anywhere on or above the earth's surface in any weather, anytime, from satellite signals.

Manitoba signed a federal-provincial-territorial *Memorandum of Agreement* to enhance and expand application of GPS technology. This will provide a free national real-time GPS correction distribution service over Canada and beyond, improving efficiency and effectiveness and enabling applications not previously possible. It will benefit government and industry by improving standardization of data collection and positional accuracy, while lowering costs and improving services that rely on spatial referencing in such applications as natural resource management, environment monitoring, agriculture, civil engineering, land management, trucking and shipping, fleet management, aviation, marine operations, mineral exploration, mining, facilities management, and emergency services.

Survey Services Program

The program provides land, engineering, and control surveys and related services for acquiring and disposing of land, constructing and maintaining public works, and spatially referencing land-related features and information, including:

- Subdivision, right-of-way, parcel, and easement surveys.
- Terrain modelling and contour surveys, including beds of water bodies.
- Cross-section and centre-line profile surveys.
- Project-specific mapping and engineering control surveys.
- Topographical and location surveys.
- Cadastral mapping.
- Air-photo compilations.
- Deformation and subsidence surveys.
- Land dimensions, quantities, and spatial co-ordinates.
- Administrative boundary plans.
- Legal descriptions and title plots.
- Structure location certifications.
- Land transaction documents.

Major client departments included Manitoba Transportation and Government Services (Construction and Maintenance, and Land Management Services), Manitoba Conservation (Water Resources, Parks and Natural Areas, Crown Lands), Manitoba Aboriginal and Northern Affairs (Agreement Management Co-ordination, and Community Support Services), Manitoba Industry, Trade and Mines (Mines Branch), and Manitoba Intergovernmental Affairs (Local Government Support Services, and Water Services Board).

Land description services are offered to municipalities, law and survey firms, and citizens, for Crown land reservations, dispositions, and other consents or rights, for such purposes as subdivisions, sales and exchanges, plan cancellations, and closing bylaws. These services include preparation of legal descriptions, calculation of areas, reviews of easement documents, reports on mines and minerals, and preparation of *Minister's Orders* and *Consents*.

Survey Services achieved its cost-recovery objective. Surveyors and survey technologists carried out work on 760 projects: 139 land surveys, 21 control surveys, 556 land descriptions, 35 Ministerial Orders, 6 Transfer Agreements, 2 cadastral mapping, and 1 air photo compilation.

Major survey project work included:

- Parcel surveys of land selections under Norway House First Nation Northern Flood Agreement, Cross Lake First Nation Northern Flood Agreement, and Grand Rapids Forebay Agreement.
- Full expropriation right-of-way survey of part of PTH 10 through City of Brandon.
- Full expropriation right-of-way survey of PR 800 for access to, and retracement survey through, Birdtail Creek 57 Indian Reserve.
- Retracement survey of part of PR 354 through Keeseekoowenin 61 Indian Reserve.
- Retracement surveys adjoining Duck Mountain Provincial Forest to resolve boundary disputes.
- Water control surveys for Turtle River Watershed Conservation District under a provincial government cost-sharing agreement.

- Full expropriation right-of-way survey of part of PR 305, part of the West Dyke Flood Control.
- Land descriptions for mineral exploration permits and Crown oil and gas lease sales.
- Centre-line profile survey of roads, dykes, and railways throughout Red River floodplain, utilizing GPS technology under Canada-Manitoba Red River Flood Protection Program.
- Cadastral (land parcel) mapping of Moose Lake cottage lot subdivision.
- Compilation of 15 geo-referenced aerial photos for land selections under Treaty Land Entitlement program.

Table LI.7
12-4(d) Survey Services

Expenditures by Sub-appropriation	Actual 2000/01 $	FTE	Estimate 2000/01 $	Variance Over/(Under)	Expl. No.
Total Salaries and Employee Benefits	1,250.6	32.00	1,521.4	(270.8)	
Total Other Expenditures	508.9		451.3	57.6	
Total Recoveries	(1,522.4)		(1,524.2)	1.8	

Remote Sensing

The Centre processed NOAA/AVHRR satellite data for Canadian World Crop Monitoring Program, Canadian Global Change Program, and Parks Canada, covering all of Canada, using GEOCOMP satellite image processing. Cloud-free image composites were created every 10 days between April 11 and end of October.

Generation continued of land use/land cover data, using satellite data, for east side of Lake Winnipeg. The block north of Bisset to Little Grand Rapids is in progress. These are required for resource management and environmental monitoring and Model Forest program.

The Centre was contracted by Northern Interlake Conservation Effort and Stuartburn-Piney Agricultural Development Association to update 1994 land use/land cover to 1999 for Rural Municipalities of Fisher, Woodlands, Hanover, and La Broquierie.

Assistance was given to Canada-Czech Water Management and Emergency Preparedness Know-how Transfer Project, to provide remote sensing technology for a decision-support system to monitor hydrological processes in Morava watershed.

Manitoba Crop Diversification Centre was assisted in study of Assiniboine Delta Aquifer. LANDSAT satellite data was used to determine total irrigated area, irrigated potato crop, and other irrigated crops.

Prairie Farm Rehabilitation Administration again contracted the Centre to assess crop residue for their Environmental Tax Credit Program. Satellite imagery was used to assess and quantify farmland with more than 40% crop residue prior to seeding.

Canadian Space Agency and RADARSAT International were assisted to organize a workshop (Winnipeg) on application of RADARSAT-1 imagery to geology, forestry, disaster response, agriculture, and wetlands.

Mobray Business Solutions is being assisted to determine if RADARSAT imagery can be used to quantify soil moisture conditions relating to salinity in Aggassiz Irrigation Region.

At request of Water Resources Branch, to map flooding in southeast in November, RADARSAT imagery was acquired for an area from U.S. border to PTH 1.

Tours and demonstrations were provided to over 20 groups.

Topographic Mapping Section

After completing a project for Water Resources Branch in geo-referencing a hand-drawn contour map from 1950 ground surveys, the data was examined to assess suitability for Red River GIS elevation model. As data points seem inadequate in density to produce an adequate Digital Elevation Model, cost estimates are being gathered to acquire high-resolution LIDAR data for the valley. This information, combined with GPS elevations on all raised pads and dykes, will be used for flood modeling and integrated into a computerized decision-support system by Water Resources Branch and PFRA with International Joint Commission.

Digital topographic compilation was completed for the area covered by ortho aerial photography in the west and Interlake. Area covered included about 400 air-photo models.

Digital topographic data generation continues for Forest Inventory in Porcupine Hills ara, and for extending 1:20,000 coverage in Interlake, using 1:60,000 scale aerial photography. Compilation is enhanced by addition of corridors beside roads to assist the Inventory to prepare base mapping.

Seven Drain Designation Maps were completed (for a total of 62) for Water Resources' geographic information system. Through enhancement of digital data, drains are designated by degree of contribution to overall streamflow, and installation of culverts to assure continuous flow, in the digital elevation model being developed for Water Resources.

Negotiations continued with NRCanada for integration of 1:50K topographic data with the Provincial product to speed up base-mapping in north. Data updating was tested using Landsat 7 and IRS satellite imagery. Manitoba will develop a work plan with stakeholders to expedite faster orthographic and base-map compilation for the north.

A large topogrpahic and orthographic photo base-mapping project for Northern Flood Agreement is underway for Crown lands to cover Cross Lake area. Tenders have been prepared for aerial photography. Base-mapping will be done by the Section. The project will determine land-grant locations.

The Section is assisting Elections Manitoba to develop special layers of topographic data to identify building locations to aid field work when compiling election lists.

The Department's Internet and Intranet webpages were re-designed to reflect integration of Natural Resources and Environment. The project included committee management and coordination with Branches to retool to new standards and style.

Table LI.8

12-4(e) Remote Sensing

Expenditures by Sub-appropriation	Actual 2000/01 $	FTE	Estimate 2000/01 $	Variance Over/(Under)	Expl. No.
Total Salaries and Employee Benefits	644.4	13.00	629.7	14.7	
Total Other Expenditures	42.5		121.4	(78.9)	
Total Recoveries	0.0		(23.7)	23.7	

Distribution Centre

The Centre serves government and public with map sales, air-photo library, support for projects, and reproduction of material. The market for these products shifted significantly from primarily government to primarily public.

43,000 maps were sold directly or through about 155 dealers in Manitoba, north-western Ontario and north-central U.S.A.. Federally-produced maps experienced increasing sales to outdoor recreational users, due to marketing at U.S. outdoor recreational venues. Dealer numbers grew due to the Regional Distributor Agreement with Fisheries and Oceans Canada, increase in discount rate for hydrographic charts, and expansion of market boundaries.

Sale of hydrographic charts decreased due to charts being produced illegally and sold more cheaply. Fisheries and Oceans Canada and Distribution Centre halted production of these charts and are working with the federal Justice Department to prevent illegal production. A conviction against one producer of illegal charts has set a precedent for action against others; sale of these products will increase once illegal productions are unavailable.

New products and product lines have been added, geared to client needs and requests. Printing on demand for certain products is now available, reducing need for large press runs.

The Centre operates the government's first credit-card-secured e-commerce site, *Canadamapsales.com*, offering maps–all topographic maps for Canada are available–to a market without geographic boundaries, that never closes. A logo developed for *Canadamapsales.com* was incorporated into all aspects of business. The site has been very successful, generating $19,000 in sales in its first full year of operation. Addition of boating chart indices is underway.

Sale of mapping products and the e-commerce site is promoted by advertising for the Yellow Pages, ***Anglers' Guide***, Travel Manitoba publications, and display headers. Product brochures include the new logo and brochures are added to cover new products. To promote map sales to our largest client group, the outdoor recreational user, for whom Canada is a favourite destination, *Canadamapsales.com* participated in recreational consumer shows: Chicagoland Sport Fishing Show, Eastern Sport Show (Pennsylvannia), Northwest Sport Show (Minneapolis), Winnipeg Boat Show, and three All-Canada Shows (Indiannapolis, St. Charles, and Green Bay).

Air Photo Library started updating the index system by computerizing the reference book which details flight line information of all air photos.

5,000 aerial photographs were added to the Air Photo Library, bringing holdings to 882,669. 23,000 products were supplied to customers, Mapping Program, and other agencies. The photomechanical unit employs a scanner and computer to scan photography and supply quick prints, at better quality than the former copyproof camera.

Geographic Mapping

Thematic mapping for government (30 projects) included Park boundary plans, forestry maps, lake depth charts, Parks brochure updates, School Division boundary updates, lodge location map, and updating and publishing other products. Lake depth charts are being revamped gradually; the 200 charts available will be issued in the new format as stocks deplete. The 1:1,000,000 base map showing new Parks and Park boundaries is available, produced on demand.

Table LI.9

12-4(f) Distribution Centre

Expenditures by Sub-appropriation	Actual 2000/01		Estimate 2000/01	Variance Over/(Under)	Expl. No.
	$	FTE	$		
Total Salaries and Employee Benefits	364.6	9.00	373.6	(9.0)	
Total Other Expenditures	322.5		326.9	(4.4)	
Total Recoveries	(69.0)		(95.0)	26.0	

Land Mapping Services

Primary function is to develop and maintain province-wide digital (cadastral) property parcel data. The data is fundamental to a province-wide, multi-purpose information system. It provides land data users with a means to spatially reference their land data records such as infrastructure, assessment, ownership, land use, etc., to a common, geo-referenced, land parcel base that is timely, precise and homogeneous. The data is suitable for supporting a variety of parcel-based Geographic Information System applications. Primary users include Manitoba Hydro, Manitoba Intergovernmental Affairs (Assessment), Water Resources Branch, Lands Branch, municipalities, and communities covered by the data including Winnipeg and Brandon.

Major section activities included:

- Developing digital land-parcel data for 7 communities and 6 full townships, adding 9,700 land parcels to MLI data warehouse.
- Data maintenance on land parcel data sets to 1 January 2000 to ensure timeliness of data.
- Implementing a new PC-based cadastral computation/database software, CEDIT (Cadastral Editor)
- Developing a Section component for the Intranet website to promote products.
- Conversion of property data to most common map formats.
- Storage of land parcel data in the Manitoba Land Initiative (MLI) Data Warehouse to provide one-stop distribution/user access.

More specifically:

- Development of digital positional parcel information in urban and rural areas continued to meet increasing demand. About 9,700 graphically-defined parcels were added to MLI Data Warehouse database including parcel data for Towns of Altona, Gretna, Teulon, Balmoral, Powerview, Pine Falls, and Lac du Bonnet. Parcel mapping of 4 Townships in R.M. of Portage la Prairie provided a graphical land base displaying parcels neighbouring Portage Diversion. Two townships in Powerview and Lac du Bonnet were mapped.
- Resulting from this program, a cohesive and consistent province-wide cadastral framework for geomatics and Geographical Information System applications is being assembled. This infrastructure is used by Manitoba Hydro and Centra Gas, Manitoba Intergovernmental Affairs, and other provincial agencies and public-sector users as a common base to facilitate data analysis, assessment, modelling and display in GIS environments, and for decision-making and planning. Equally important is maintenance of related databases to ensure timeliness and utility of data. The Section completed updating its land parcel data inventory to at least 1 January 2000. The Section maintains about 380,000 registered survey plan parcels developed under its program including some 260,000 parcels in Winnipeg.
- Introduction of a new parcel mapping software program, CEDIT, improved efficiency and productivity of parcel data and markedly reduced time required for data maintenance and updating. Free use of the software is being promoted among other departments who create or utilise parcel-based information, including on-site tutorial and training sessions. Of particular value is the functionality of CEDIT to support development of both ownership (certificate of title) and assessment graphics databases. The functionality was tested when the

Section completed ownership mapping of part of Parish of St. Peter to assist Crown Lands Branch to resolve complex land issues and dispositions.

- The Section's digital land parcel information was a valued asset for interdepartmental assessment, land-related information initiatives, engineering and construction, and parcel-based data management, for an increasingly broad spectrum of public and private sector clients. The Section is actively promoting digital cadastral products through maintenance of a page on the Department's Intranet website and storage of parcel data in the new MLI Data Warehouse for ease of access and distribution to government and public.

Table LI.10

12-4(g) Land Mapping Services

Expenditures by Sub-appropriation	Actual 2000/01 $	FTE	Estimate 2000/01 $	Variance Over/(Under)	Expl. No.
Total Salaries and Employee Benefits	503.8	9.00	496.5	7.3	
Total Other Expenditures	191.1		240.2	(49.1)	

Chapter 15

Environmental Stewardship

Policy Co-ordination

The Branch co-ordinates and integrates departmental policy, natural resource allocation and Crown land-use planning, environmental impact assessment, legislative interpretation, and co-management, in accordance with principles of sustainable development. The Branch monitors cross-boundary water projects, administers licensing of resource-based tourism facilities, represents the Department in issues related to internal and international trade agreements, provides support on communications issues, co-ordinates preparation of Ministerial correspondence, and co-ordinates departmental settlements and litigation arising out of hydro-electric and water-control projects and Treaty Land Entitlement.

Integrated Directors Group Review Process

The Branch is secretariat to Integrated Directors Group, which establishes procedures for integrating management of natural resources, consistent with sustainable development.

This process co-ordinates review and development of departmental positions on resource management issues, including ***Environment Act*** proposals, land subdivisions, Crown oil and natural gas lease sales, highways proposals, applications to Sustainable Development Innovations Fund and Special Conservation Fund, and applications to the Licensing Advisory Committee.

This mechanism assists the Branch in providing strategic planning, analytic, economic and evaluative support services to assist management to improve effectiveness of departmental programming, Crown land-use planning and resource allocation. This includes:

- Managing the Department's assessment of development proposals under ***The Environment Act*** and the ***Dangerous Goods Handling and Transportation Act***, and submitted by other agencies and businesses, and pre-screening proposals from Manitoba Transportation and Government Services,
- Development of sustainability indicators for the ***Provincial Sustainability Indicators Report***, under ***The Sustainable Development Act***,
- Integrating Conservation policies and programs with other departments, including inter-departmental and inter-governmental committee participation. This includes supporting the Crown Land Classification Committee. As secretariat to the Committee, the Branch, in conjunction with regional Bloc Planning Committees, maintains and administers the system of operational coding on Crown Land, and prepares Provincial Crown Land Plans. The Branch also administers the Committee's system of review and determination on the disposition (sale, exchange, designation by Order-in-Council) of Crown lands, and formulates policy and procedures for other issues involving Crown lands. The Committee reports to the Provincial Land Use Committee of Cabinet,
- Assisting planning, management and use of all Crown resources (wildlife and fish, surface and ground water, forests, minerals, outdoor recreation and ecological resources, Crown lands) by co-ordinating preparation of reports for municipalities and planning districts, and otherwise responding to requests for studies, maps, and statistical compilations required to properly allocate resources,
- Assisting review of annual operating plans of Forest Management Licensees and forest renewal strategies,
- Reviewing applications for funding under Sustainable Development Innovations Fund, the Special Conservation and Endangered Species Fund, and Fisheries Enhancement Initiative Fund,
- Co-ordinating licensing of resource-based tourism facilities and services, such as hunting and fishing lodges, outfitters, and eco-tourism,
- Assisting development of Fish and Wildlife Sustainable Development Strategies, particularly in respect of preparation for public review, as part of the Land and Water Strategy, and,
- Participating in the Geographic Information Systems Committee, which seeks to ensure that the Department's long-term GIS needs are met.

Legislation and Litigation

The Branch provides co-ordination for Headquarters Operations, Regions, other Branches, departments, and agencies on new and amending legislation, both provincial and federal, and on litigation. An advisory service on interpretation and application is provided to the Department and the public.

Amendments to ***The Water Resources Administration Act*** were developed and enacted, to ensure that earlier (1998) amendments, providing enforcement and notice provisions in respect of building standards in the Red River Valley Designated Flood Area, could be effectively implemented.

Co-Management

- The Branch develops policy, procedures, and guidelines for co-management of natural resources with First Nations communities and organizations, facilitates negotiation and leadership of boards and committees, and integrates departmental participation in agreements. The Branch:
- Co-ordinates consultation with First Nations and northern communities on resource allocations for lodges and outfitters,
- Sits on Norway House Resource and Nelson House Management Boards for integrated land and resource use in their Resource Management Areas,
- Reviews Northern Flood Agreement resource management agreements and co-ordinates departmental input and requirements,
- Participated in discussions with West Region Tribal Council for co-management on Dauphin Lake, and,
- Acts as liaison with other Provinces.

Transboundary Water Projects

The Branch monitors development of international and inter-provincial water projects, to protect Manitoba's interests and ensure protection of quality and quantity of water flowing into Manitoba.

The Transboundary Waters Office represents Manitoba interests relating to waters crossing the International Boundary. The Office has established a working relationship with Canadian, American and international agencies and officials. It represents Manitoba on the United States-Canada Consultative Group on Garrison, coordinates interdepartmental input and analysis of proposals related to the Garrison Diversion Unit and Devils Lake, liaises with the International Joint Commission, monitors activities of IJC Boards and coordinates Manitoba responses. The Office works closely with Foreign Affairs and Environment Canada in developing and presenting Canadian positions to United States.

Watershed Management Projects

Manitoba, represented in part by the Branch and Water Quality Management Section of Water Resources Branch, has engaged with other Departments (Aboriginal and Northern Affairs, Intergovernmental Affairs), City of Winnipeg, Ontario, First Nations, and Canada, in developing a watershed management plan. This plan includes a focus on water quality concerns and local communities' needs to use watershed resources. Inter-jurisdictional meetings have resulted in shared information and determination of general principles to guide the preparation of the plan. The plan continues to be developed and focuses on water quality and protection, sustainable use of resources and community sustainability. The Branch continues to work closely with Water Resources Branch and other provincial officials as well as City of Winnipeg for plan development, completion and to investigate an acceptable implementation format.

Licensing Advisory Committee

The Branch provides secretariat, and Chair, for Licensing Advisory Committee (LAC). The Committee, which comprises the Branch, Regional Operations and Environmental Management Divisions, Manitoba Culture, Heritage and Tourism, and Manitoba Aboriginal and Northern Affairs, makes recommendations to the Minister on licensing resource-based tourism facilities, which include hunting and fishing lodges and outcamps, outfitter services, and eco-tourism ventures. About 1,100 licences are issued annually.

The Branch serves as secretariat to the LAC Appeals Committee, which provides an appeal mechanism for operators wishing to appeal a decision made by LAC.

Hydro-Electric and Water-Control Project Settlements

The Branch co-ordinates departmental input into settlements arising out of *Northern Flood Agreement*, outstanding matters relating to Grand Rapids Forebay development, Fairford River control structure, and other claims by First Nations resulting from hydro-electric or water-control projects. Negotiations with Cross Lake First Nation regarding *Northern Flood Agreement* are progressing.

Treaty Land Entitlement

The Branch formulates the Department's position on Treaty Land Entitlement issues. Policies are developed with respect to availability of provincial Crown land for Treaty Land Entitlement settlements.

Other Programs

The Branch is supervising a project to resolve long-standing problems in Big Grass Marsh area.

The Branch, with Remote Sensing Branch, represented the Department in a multi-department Lands Related Information System initiative, to develop a government-wide framework for managing lands-related information. This initiative (Manitoba Lands Initiative, MLI) offers an "in-house" approach to sharing GIS data across government. Additional investigations concerning provincial pricing and distribution of certain geospatial data continues.

The Branch represents the Department in trade matters related to the Agreement on Internal Trade, NAFTA and GATT/WTO trade agreements. Activities include representing the Department in development and implementation of the *Processing of Natural Resources* chapter of the ***Agreement on Internal Trade***, co-ordinating activities associated with implementation of NAFTA, monitoring trade developments in resource issues, and conducting liaison with other departments and jurisdictions on trade matters involving resources.

The Branch coordinates negotiations with forestry companies to increase opportunities for sustainable use of forest resources.

The Branch co-ordinates preparation of Ministerial correspondence for Parks and Natural Areas, Forestry, and Wildlife issues.

Staff assisted preparation of the *Drinking Water Advisory Committee Report*. This Committee was established by the Ministers of Health and Conservation to review reporting and followup procedures for bacterial testing of all water supply systems. The Committee made 29 recommendations on such matters as a drinking-water co-ordination centre, private well-water testing, regulation and monitoring semi-public water systems, improved training and standards for system operators, and enhanced resources.

Staff supported Manitoba Round Table for Sustainable Development in preparing fish and wildlife policies. Two draft reports, *Manitoba Fish Strategy: Policy Recommendations* and *Manitoba Wildlife Strategy: Policy Recommendations and Recommendations for Revision of* ***The Wildlife Act***, are under consideration by the Round Table.

Environmental Approvals

To ensure that development maintains sustainable environmental quality, the Branch:

- Administers development approval requirements of ***The Environment Act*, *The Dangerous Goods Handling and Transportation Act***, and ***The Public Health Act***,
- Controls municipal, industrial and hazardous waste sources of pollutants,
- Ensures safe drinking water,
- Minimizes environmental impact of development proposals, and
- Minimizes adverse effects to the environment and public health from pesticide use.

Municipal, Industrial, and Hazardous Waste Approvals

To control municipal, industrial and hazardous waste sources of pollutants, and ensure safe drinking water, the Section:

- Co-ordinates environmental assessment and licencing of proposed Developments,
- Recommends conditions to the Director and Minister for *Development Licences*,
- Advises on technical aspects of pollutant treatment, control strategies, and hazardous waste,
- Evaluates proposed water and wastewater works for public health concerns in preparation for approval by Minister of Health,
- Reviews minesite rehabilitation schemes,
- Provides technical assistance to municipal, provincial, and federal governments on water treatment and distribution, wastewater collection, treatment and disposal, air emission control, and management of hazardous wastes,
- Provides environmental technical support to other Departments,
- Conducts inspection and enforcement activity for developments in planning, construction, and operating stages,
- Responds to complaints and enquiries, and
- Represents the Department at public meetings or hearings.

Environmental Land Use Approvals

To ensure that potential environmental impacts are identified and addressed in projects which affect land and water use, the Section:

- Co-ordinates environmental assessment and licensing of proposed developments in recreation, transportation and transmission, forest management and water development and control,
- Co-ordinates environmental review of proposed municipal *Development Plans* and *Zoning Bylaws* and amendments, and Treaty land entitlements,
- Co-ordinates environmental review of Canada/Manitoba Infrastructure Works projects,
- Assists developing and revising legislation, policies and procedures,
- Participates in and provides technical advice for projects and program planning, including screening of Manitoba Transportation and Government Services projects,
- Participates on interdepartmental committees and task forces, and review and approval by letter, of projects with environmental impacts not included in *Classes of Development Regulation*,
- Participates on Tembec/Pine Falls Paper and Tolko Manitoba forest management stakeholder advisory committees,
- Management services for such other initiatives as Manitoba Model Forest and Manitoba Forestry Association,
- Conducts inspection and enforcement for developments in planning, construction, and operating stages,
- Responds to complaints and enquiries, and
- Represents the Department at hearings and public meetings.

Pesticide Approvals Section

To minimize adverse effects to health and the environment from pesticides and fertilizers, the Section:

- Provides professional expertise to the Department, government, public, and industry on pesticide/fertilizer use, storage, disposal, and control,
- Manages a *Pesticide Permit* system to address public concerns/objections,
- Recommends conditions to the Director and Minister for *Environment Act Licences*,
- Assists in periodic revision of *National Standard for Pesticide Education, Training, and Certification in Canada* for pesticide applicators and vendors,
- Provides technical expertise and advise to Association for a Clean Rural Development on container disposal and other environmental concerns,
- Supplies expertise to Federal, Provincial, Territorial Committee on Pest Management and Pesticides through annual national meetings and telephone conferences,
- Serves on the Board of Directors and provides information to Prairie Provinces Certified Crop Advisor program,
- Serves on the Board of Directors and provides advice to Industrial Vegetation Management Association,
- Conducts inspection and enforcement activity for developments in planning, construction, and operating stages, and
- Responds to complaints and enquiries respecting pesticide/fertilizer use.

Table ES.1

Environmental Approvals Activities, 2000-01

(ELUA - Environmental Land Use Approvals; PA - Pesticide Approvals; MIHWA - Municipal, Industrial, and Hazardous Waste Approvals)

Activities	ELUA (#)		PA (#)		MIHWA (#)		Total	
The Environment Act	00-01	99-00	00-01	99-00	00-01	99-00	00-01	99-00
Project proposals received	14	23	18	13	33	33	65	69
Project proposals processed	12	21	18	13	28	33	58	67
Project proposals refused	0	0	0	0	1	2	1	2
Minor alterations requests received	13	10	2	2	28	22	43	34
Minor alterations requests processed	13	10	2	2	25	22	40	34
Revision requests to *Licences* approved	0	0	2	0	19	8	21	8
Pre-Licencing activities processed	32	24	1	0	33	32	66	56
Municipal Dev. Plan/Zoning By-law reviews	68	71					68	71
Highways pre-planning reviews	21	20					21	20
Infrastructure project reviews-Can/Man	0	5			132		132	5
Hydro Low Voltage reviews	6	8					6	8
Other Reviews. Licence not required	36	41			35		71	41
Site inspections, monitoring and enforcement	84	81	167	148	111	22	362	251
Pesticide Use Permits Issued	0	0	219	225			219	225
Post Seasonal Reports received/compiled	0	0	212	220			212	220
Public complaints investigated	14	7	14	26	11		39	33
Public meetings attended	16	9	4		16	11	36	20

Activities	**ELUA (#)**		**PA (#)**		**MIHWA (#)**		**Total**	
Public Hearings attended	0	9	0	1		1	0	11
The Dangerous Goods Handling and Transportation Act								
Project proposals received	0	0			6	5	6	5
Project proposals processed	0	0			4	5	4	5
Minor alterations requests received	0	0			3	6	3	6
Minor alterations requests processed	0	0			4	2	4	2
Pre-Licencing activities	0	0			3	3	3	3
Site inspections, monitoring and enforcement	0	0			10	4	10	4
Public meetings attended	0	0			1		1	0
***The Environment Act*, cont'd**	**00-01**	**99-00**	**00-01**	**99-00**	**00-01**	**99-00**	**00-01**	**99-00**
The Public Health Act								
Proposals received for *Certificates*	0	0			24	34	24	34
Proposals processed for *Certificates*	0	0			20	37	20	37
Proposals reviewed	0	0			27	7	27	7
Fumigation Permits issued	0	0	4	3			4	3

- Simplot Potato Processing Plant: working to facilitate an environmental review process that ensures public involvement while minimizing time required.
- City of Portage la Prairie: assisted with pre-licencing activities for expansion of its sewage treatment plant to accommodate the Simplot potato-processing plant.
- Mandatory Certification for Operators of Water and Wastewater Facilities:, developed a draft certification program for operators, assisted by a stakeholders committee. Is working with Red River College to expand training and educational opportunities for operators.
- Drinking Water Advisory Committee Report: Assisted Chief Medical Officer of Health to review drinking water programs, focusing on microbiological safety.
- Investigation of Groundwater Contamination: in July and August, the water supplies for eight communities were placed under *Boil Advisories*. Co-ordinated investigations into sources of contamination and worked with Health and Municipal Officials to provide safe water.
- Assessment of Northern Water Utilities: worked with Manitoba Aboriginal and Northern Affairs and Manitoba Water Services Board to assess condition and performance of water-treatment facilities under their jurisdiction, to priorize for replacement.
- Peat Mining: Small, large, and out-of-province developers showed considerable interest in initiating or expanding peat-mining operations in the south-east. In view of potential cumulative impacts on wildlife habitat, drainage infrastructure, and surface water quality, the Branch struck a committee to begin developing a Peat Management Plan.
- City of Brandon: work continues on the wastewater treatment system and the treatment facility serving Maple Leaf Meats plant. Licencing activities and establishment and maintenance of a database of effluent quality performance will facilitate the next phase of water quality management for the Assiniboine River here.
- Provencher Paired Bridges Project: co-ordinated environmental assessment and licensing. Winnipeg filed a *Proposal* and an *Environmental Impact Statement* to replace the vehicular bridge and construct a separate pedestrian bridge. Public consultation and Technical Advisory Committee review was completed; a licensing decision is expected in spring 2001.

- Aquifer Management and In-stream Flow Studies: provided technical support for development of a water quality protection plan for Oak Lake Aquifer, and continued support of *Winkler Aquifer Management Plan* implementation. Participated on technical committee to direct determination of in-stream flow requirements on Assiniboine River.
- Flood Protection Works and Irrigation Development: participated in, and provided technical support for, several flood protection studies. Continued participation on Federal/Provincial Committees and Working Groups on planning and regulation of irrigation development.
- Hydro Projects: Manitoba Hydro continued planning developments, including three northern generating stations, and a high-voltage transmission line along east side of Lake Winnipeg. The proposed generating stations are Gull Rapids Station (Nelson River), Wuskwatim Station (Burntwood River), and Notigi Station (Notigi Control Structure). Manitoba Hydro negotiated a business partnership with Split Lake First Nation for Gull Rapids project. Partnership negotiations with First Nations continue for the other developments. The Branch met periodically with Manitoba Hydro and Canadian Environmental Assessment Agency about these developments. Manitoba Hydro was issued an *Environment Act Licence* for construction of a new 115 kV switching substation near Hudson Bay Mining and Smelting facilities at Flin Flon. In the south, a new combustion-turbine generating station was licenced. A pre-proposal Technical Advisory Committee meeting was held on construction of a high-voltage transmission line from Glenboro to North Dakota.
- Manitoba Model Forest: Involvement continued, with staff on the Board of Directors and Executive Committee. Staff assisted development of the *2000-2001 Work Plan*, attended meetings of Directors, Executive Committee, and Advisory Group, and assisted planning meetings, research workshops and conferences. Liaison and project planning activities have continued with the twinned Monarch Butterfly Model Forest in Mexico, through the acquisition of Canadian International Development Agency funding.
- Federal Property Transfers: Continued review and co-ordination of federal environmental assessments for transfer of federal facilities and properties to municipal and private authorities.
- Pine Falls Paper Company/Tembec Interim *Three-Year Plan*: Review co-ordination continued. Due to preparation of a wide-area landuse plan for the east side of Lake Winnipeg, the company withdrew their application for a *Sustainable Forest Management Plan 2001-2010* and requested an extension of their *Environment Act Licence*, while they develop an *Interim Three-Year Forest Management Plan*. A one-year extension to the *Environment Act Licence* was granted for 2001.
- Pesticides Permits: review and approval of applications for pesticide use continued. Government departments and municipalities require a *Pesticide Use Permit* annually.
- Crop Protection Warehouses/Fertilizer Developments: review of applications to upgrade agricultural chemical storage facilities to meet industry standards continued. All facilities are required to meet stringent requirements in order to receive chemical products.
- Pesticide Regulations: Health Canada announced an *Action Plan for Urban Use Pesticides*, developed in partnership with provincial and territorial governments. A main objective is reducing pesticide use on lawns by applying Integrated Pest Management principles emphasising prevention, reduced risk products, and pesticides application only when necessary.
- West Nile Virus: with federal, provincial and territorial ministries, Manitoba Health established a comprehensive, co-ordinated, and pro-active *Risk Management Plan* to respond to West Nile Virus.

Legislation and Inter-governmental Affairs

The unit ensures that conservation legislation and regulations are appropriate and up-to-date and that beneficial working relationships are established and maintained with other Canadian jurisdictions.

Legislation and regulations are developed, reviewed and amended, the Department is represented on Federal/Provincial committees and task forces, and agreements are negotiated to ensure consistent and effective environmental management.

The unit liaises with legal counsel in Manitoba Justice and provides internal consulting service on legislative, enforcement, public consultation, intergovernmental and other issues.

Legislation

- Managed process leading to enactment of ***The Water Resources Conservation and Protection and Consequential Amendments Act***, which prohibits transboundary transfers of bulk water,
- Managed amendment of ***The Sustainable Development Act*** and ***The Environment Act***, to implement sustainable development policy.
- Assisted amendments of ***The Water Rights Act***, and ***The Water Resources Administration Act***.
- Advised on re-drafting of ***The Public Health Act***, as participant on Public Health Act Review Committee,
- Co-ordinated or assisted other regulation development and amendment processes, including:
  - *Drinking Water Regulations*,
  - *Training and Certification of Water Plant Operators*,
  - *Storage and Handling of Gasoline*,
  - Departmental input into amendment of ***The Summary Convictions Act*** regulations on set fines,
  - Chaired committee investigating issues of biomedical wastes,
- Continued liaison with Manitoba Justice.
- Initiated process for amending ***The Environment Act*** to implement recommendations of the *Report on the Consultation on Sustainable Development Implementation*.
- Other Branches were assisted in developing and amending legislation, such as amendments to ***The Wildlife Act*** to address hunting wildlife in captivity.

Intergovernmental Affairs

- Led negotiation of a *Canada-Manitoba Implementation Agreement* to implement *Inspections and Enforcement Sub-Agreement* under the *Environmental Management Harmonization Accord*,
- Completed negotiation of *National Accord on the Prohibition of the Bulk Removal of Water from Canadian Drainage Basins*,
- Manitoba representative on intergovernmental committees:
  - *North American Agreement on Environmental Cooperation* (Canada Implementation Working Committee and Canada Implementation Senior Officials Committee),
  - Canadian Council of Ministers of Environment Committees:
  - CCME Environmental Protection and Planning Committee,
  - CCME Ad Hoc Toxic Substances Task Group,
  - Co-chaired Health and Environment Task Group.
- Coordinated implementation of *Manitoba/Saskatchewan Environmental Management Accord*,
- Contact for implementation of *Internal Trade Agreement*,
- Contact on Aboriginal issues, and,
- Co-chair a project in Slovakia for public consultation process for developing legislation on contaminated site remediation.

Other

- Co-chaired Steering Committee for the implementation of the recommendations of the *Report on the Consultation on Sustainable Development Implementation* (COSDI),
- Assisted planning for the *Water Management Strategy*.

Sustainable Development Coordination

Much of the work of the former Sustainable Development Coordination Unit (SDCU) was integrated into other parts of the Department. All of the work of the Department is founded upon a commitment to the principles of sustainable development and sustainable development activities were carried out by all Branches and Regions. Consequently, the various tasks of the Unit and the Manitoba Round Table for Sustainable development are better served by integrating duties and staff into relevant program areas.

The Unit furthered understanding and implementation of sustainable development by:

- preparing strategies and education and promotion programs,
- providing administrative and research services to Manitoba Round Table for Sustainable Development,
- coordinating review of policy and strategy implementation by Interdepartmental Planning Board,

- developing the provincial Sustainable Development Strategy and component strategies,
- developing sustainability indicators, preparing the provincial ***Sustainability Report*** and Sustainable Development Code of Practice,
- coordinating application of ***The Sustainable Development Act*** *to* public sector organizations,
- administering the Sustainable Development Innovations Fund, and
- other tasks assigned by the Minister.

Manitoba's Sustainable Development Strategy was released, formally accepting the Consultation on Sustainable Development Implementation (COSDI) recommendations as the first of a number of steps that will ensure implementation of sustainable development principles and guidelines into workings of government.

Other steps were establishment of a new Manitoba Round Table for Sustainable Development, establishment of an Aboriginal Resource Council, and wide-area planning for the east side of Lake Winnipeg.

The new Manitoba Round Table for Sustainable Development was established. 23 members were appointed, including six Cabinet ministers, with Minister of Conservation as Chair. The Round Table met four times.

Some Round Table priority areas and activities:
- COSDI implementation
- Climate change
- Sustainability Indicators
- *Fish and Wildlife Strategies*
- *Water Management Strategy*
- *Sustainable Development Education Strategy*
- Manitoba Youth Round Table
- Sustainable Development Scholarship Program
- *Awards of Excellence* Program

Further details on the Manitoba Round Table's acitivites can be obtained from its 2000-01 ***Annual Report***.

What You Told Us - Fish Strategy and ***What You Told Us - Wildlife Strategy*** documents were released. At direction of Manitoba Round Table, an interdepartmental Working Group reviewed public comment on draft fish and wildlife policies and proposed amendments.

The Sustainable Development Act requires establishment of provincial procurement guidelines within two years of proclamation. Unit staff met with Procurement Services and Manitoba Conservation staff to initiate a plan and timeline for preparing simple and effective guidelines. Sustainable Development Procurement Guidelines were approved by Cabinet in December 2000.

Public consultations on sustainability indicators were held, from which a ***What You Told Us*** document was compiled. Proposed indicators and public comment underwent technical review, with recommendations to Manitoba Round Table.

The Unit coordinated climate change activities in Manitoba and with other Canadian governments in creation of Canada's national action plan. The Unit chaired an Interdepartmental Climate Change Committee and assisted representing Manitoba on National Air Issues Coordinating Committee that drafted the national implementation strategy and the national business plan, approved by Ministers across Canada.

As a part of national obligations, the Unit assisted partner departments and organizations to coordinate and conduct public and stakeholder climate-change meetings on scientific research, health, transportation, agriculture, impacts and adaptation, water, northern issues, baseline protection, education, and CEC-IISD Climate Change Forum, where the Minister announced creation of Manitoba Climate Change Action Fund.

Table ES.2
12-5 Environmental Stewardship

Expenditures by Sub-appropriation	Actual 2000/01	Estimate 2000/01		Variance Over/(Under)	Expl. No.
	$	FTE	$		
Total Salaries and Employee Benefits	2,300.0	39.50	2,343.0	(43.0)	
Other Expenditures	690.9		764.0	(73.1)	
- Grants/Transfer Payments	68.6		83.5	(14.9)	
Total Other Expenditures	759.5		847.5	(88.0)	

Chapter 16

Environmental Management

Environmental Operations

To maintain a healthy environment for the use and wellbeing of present and future generations, the Division operates from five regional offices (Brandon, The Pas, Winkler, Steinbach and Winnipeg), and eight regional sub-offices.

Assistant Deputy Minister of Environmental Operations and staff provide overall management.

Regional Directors and staff deliver:

- Administration of regulations and related approvals, including review of applications and issuance of approvals pursuant to ***The Environment Act, The Dangerous Goods Handling and Transportation Act, The Contaminated Sites Remediation Act, The Ozone Depleting Substances Act, The Public Health Act, The Non-Smokers Health Protection Act***, and ***The Waste Reduction and Prevention Act.***
- Enforcement, including receipt and analysis of data from licence holders, inspections (routine, spot, compliance, response to complaints, and sampling), and enforcement by ticketing, collecting evidence, initiating prosecutions, and issuing *Orders*.
- Emergency response, including 24-hour emergency response capability, technical advice, co-ordination of local training, management of clean-up activities, and issuing *Orders.*
- Monitoring, including sample-taking, and co-ordination with other departments.
- Community liaison, informing the public, organizing local environmental activities, responding to public inquiries, and identifying local environmental priorities.

Livestock Program

A team was established to administer *Livestock Manure and Mortalities Management Regulation.* Team members, including Environment Officers and Environmental Engineers, are regionally based to provide local coverage, but centrally coordinated to ensure consistency. Primary team responsibilities include investigation of complaints, annual inspection of permitted manure storage facilities, inspection of facility construction, and enforcement of regulations on management of manure and mortalities.

442 *Permits* for manure storage facilities have been issued since 1994. Most of these have been issued to new, large-scale hog producers. Each of these facilities is subject to annual inspection, including compliance with *Permit* clauses, erosion protection on inner surfaces of earthen facilities, visible signs of erosion, leakage, construction defects or damage, potential environmental effects, and management of mortalities.

Staff conduct at least three inspections during construction of new storage facilities to ensure compliance with *Permit* and regulatory requirements and address problems encountered during construction.

Previously, manure storage structures constructed before 1994 did not require a *Permit* and were not inspected, unless a substantiated complaint was received. Inspection of all livestock production operations was initiated, beginning with R.M. of La Broquerie.

Drinking Water Program

An extensive groundwater microbiological sampling program was undertaken, following detection of abnormally high levels of bacterial contamination in groundwater sources.

This increase in bacterial levels coincided with an eight-week period (June to July) when rainfall was 160-200% above normal. The Chief Medical Officer of Health (CMOH) directed all owners/operators of semi-public water systems to test their sources for microbial contamination. A survey of semi-public well owners was conducted to ascertain compliance. Of 1,259 semi-public wells, 63% were tested, of which 23% showed coliform contamination, and 2% confirmed presence of E. coli.

Privately-owned wells are responsibility of homeowners, although directive from the CMOH recommended that homeowners test wells. Following Walkerton, Ontario events, there was an unsolicited increase in bacteriological testing wherein 16,415 private wells were tested, of which 20.6% were positive for coliforms and 5% were positive for E. coli.

Following proposed changes to funding of private water testing, the Department expects an increase in well-water analysis inquiries.

Solid Waste Committee

To review and implement recommendations of the Regional Waste Management Task Force Report (December 1999), a Solid Waste Committee was established. The committee will develop and implement appropriate procedures, policies and practices to support the Department's activities and responsibilities for solid waste reduction, management and integrated waste management planning.

Significant completed activities are:
- A pilot waste-disposal ground operator training course was held.
- A project to develop operating guidelines for various waste-management facilities was awarded to a consultant and is in progress.
- Siting guidelines for waste-disposal grounds are being reviewed and revised.
- Completion of policy on management of construction and demolition waste.
- Work with grain industry on a guideline for disposal of demolition waste from wood-frame grain elevators.

Household Hazardous Waste (HHW) Collection

Miller Environmental Corporation completed the second year of a two-year contract for provision of a household hazardous waste collection program. The program provides the public with environmentally safe means of disposing of waste that should not be included in household garbage. Most common HHW items include paint products, solvents, pesticides, aerosol containers, and fuels.

30 collection days attracted 5,818 vehicles and collected 419,060 litres of HHW products. About 75% of this total was collected at Winnipeg depot.

The contract with Miller Environmental was extended to March 31, 2002, to allow time for implementation of the proposed household hazardous waste stewardship program.

Table EM.1

Enviromental Management Operating Statistics, 2000-01

ACTIVITY	Number of Inspections	Complaints Responded To
The Public Health Act		
Food Service Establishments	4830	402
Temporary/Seasonal Food Service	626	7
Retail Food Stores	453	80
Food Processors	438	44
Uninspected Meat Processors	38	1
Public & Semi-Public Water Supply	858	581
Swimming Facilities	91	32
Industrial and Construction Camps	14	

Recreational Camps	70	3
Public Accommodation	157	25
Care Facilities	377	26
Total	7952	1201
The Environment Act		
Waste Disposal Grounds	532	33
Livestock Production Operations	1348	293
Municipal Wastewater Facilities	317	24
Scrap Processors and Auto Wrecking	7	2
Agricultural Operations	11	1
Mining Operations	37	5
Forestry Operations	25	10
Manufacturing and Industrial Plants	132	57
Recreational Developments	34	3
Incinerators	21	
Water Development/Other EA Licences	191	93
Total	2655	521
The Dangerous Goods Handling and Transportation Act		
Petroleum Storage Facilities	697	24
Pesticide Storage and Container Facilities	49	
Anhydrous Ammonia	117	1
Hazardous Wastes Sites	300	55
Dangerous Goods Handling and Transportation	347	5
Contaminated Sites	222	10
Total	1832	95
Request/Response Oriented Programs		
Subdivision, Landsplits, Planning Schemes And Development Plans	1035	209
Litter	1372	797
Campgrounds	27	1
Dwellings & Buildings	1560	1122
Private Water Supplies	725	568
Insanitary Conditions	394	196
Communicable Disease Investigations	96	60
Private Sewage Disposal	1069	175
Other (Crop Residue, Ozone, WRAP, NSHPA, Public Health)	571	128
Total	6849	3256
Grand Total	20108	5073

Enforcement

The Department's enforcement policy and procedure provides a consistent approach with emphasis on ensuring compliance with legislation. In addition to the summary, below, a more detailed report of the Department's enforcement activities can be found in the Public Registries located throughout the Province and on the Department's homepage at www.gov.mb.ca/env.

Table EM.2
Environmental Operations Enforcement, 2000-01

Legislation	Charges Laid	Convictions	Formal Warnings Issued	Permits suspended	Director/ EO/MOH Orders Issued	Fines Imposed
The Dangerous Goods Handling and Transportation Act	46	46	45		9	30,197.00
The Environment Act	57	53	173		36	23,040.00
The Non-Smokers Health Protection Act	1	1				185.00
The Contaminated Sites Remediation Act					1	
The Public Health Act	7	7	58	5	19	1678.50
Municipal By-laws			7			
Total	111	107	283	5	65	$55,100.50

Table EM.3
Environmental Accidents, 2000-01

Total number of calls received	374
Total number of accidents reported	271

Breakdown by accident type:

Transport-related	53
Spills during product handling	65
Equipment failure	92
Miscellaneous	

Breakdown by dangerous goods classification (where applicable):

Class 1 (Explosives)	0
Class 2 (Compressed Gases)	18
Class 3 (Flammable Liquids)	103
Class 4 (Flammable Solids)	2
Class 5 (Oxidizers and Organic Peroxides)	2
Class 6.1 (Poisonous Substances)	4
Class 6.2 (Infectious Substances)	0
Class 7 (Radioactive Materials)	1
Class 8 (Corrosive Substances)	25
Class 9 (Miscellaneous Substances)	18

Winnipeg Region

Contaminated Sites Program

1,790 sites were tracked in *Contaminated Sites Database* by 15 November 2000. Most tracked sites are impacted with contaminants of concern above most stringent criteria; information is available to the public on the Department's webpage or through an Environment Officer. Only seven sites in the database are designated *Contaminated Sites* under ***The Contaminated Sites Remediation Act***. The webpage is updated quarterly and the public registry is updated annually.

Tracking of contaminated sites in 2000 fiscal year also included:
- review of petroleum tank removal reports,
- site inspections and review of site investigation reports,
- review of laboratory data submissions,
- meeting with the public to provide professional opinion,
- generating and reviewing requests for proposals from consultants,
- remedial action plan review and approval,
- generation of warning and closure letters.

Highlights included:
- clean-up of a home-heating-fuel spill in St-Georges,
- delineation and remediation of diesel-fuel-impacted sediment in Still Cove,
- pesticide sampling of monitoring wells and drinking-water wells in East St. Paul,
- tank pull and petroleum hydrocarbon sampling in Poplar Bay,
- delineation of petroleum-hydrocarbon-impacted plume in Gimli,
- implementation of nitrate-impacted groundwater pump and treatment in Carberry,
- delineation of petroleum-hydrocarbon-impacted soil in Morris, to design and construct alternate water-supply line.

Environmental Health Services Incidents

A Public Health Inspector responded to a complaint regarding water-damaged walls in four adjacent apartment blocks on Marion Street (St. Boniface), under same ownership. The steam heating system was faulty, causing extensive water damage due to leaking conduits in the walls. The Medical Officer of Health issued a *Public Health Closing Order*, requiring closure and vacating of 44 apartments. Five inspectors were involved in issuing notices to tenants and property management, meeting and communicating with other agencies, co-ordinating response, and responding to enquiries.

A similar situation was found in Transcona with flooding of one half of a three-storey block by a leaking steam pipe. Although this property also had multiple blocks sharing a boiler system, damage was isolated and the heating system repaired; only four suites were vacated.

Emergency Response Team

Environmental Emergency Response Team operates under authority of ***The Dangerous Goods Handling and Transportation Act***. The ***Act*** gives Environment Officers and Inspectors special powers in emergencies to enter any land or building, control and clean up releases, and take any emergency actions required to protect persons, property, and the environment.

If costs are incurred during response to an accident, the ***Act*** gives authority to initiate cost recovery actions against the party who had care and custody of the material involved.

The Emergency Team responds to releases or potential releases of contaminants that may detrimentally affect the environment or public health. ***Manitoba Emergency Plan*** identifies Manitoba Conservation as the lead provincial agency for ***dangerous goods*** incidents and environmental accidents.
Specialized expertise from any of the Department's program areas may be called to assist in response to an accident, and the Emergency Team has access to all the resources of the government of Manitoba and, through agreement, resources of the government of Canada.

The active Team consists of twelve Environment Officers. 22 regional Environment Officers are also part of the Department's response system. A 24-hour reporting line for environmental emergencies is maintained. The number, 944-4888, is included in federal and provincial spill-reporting regulations.

Basic training for EERT members is about 50 days and meets requirements of *NFPA 472 Hazardous Material Responder Training* and *CFR 1910/120* training for hazardous materials workers. Members received training in *Basic Radiation Protection and Instrumentation, Occupational Safety and Health, Self-Contained Breathing Apparatus, Transportation of Dangerous Goods*, first aid, and cardio-pulmonary resuscitation.

Northern Region

Northern Solid Waste Committee

Northern Solid Waste Committee (NSWC), was established as recommended in *Final Report of the Manitoba Regional Waste Management Task Force (1999).* The committee comprises northern stakeholders: Keewatin Tribal Council, Swampy Cree Tribal Council, Community Councillors, Manitoba Aboriginal and Northern Affairs, Association of Manitoba Municipalities, Northern Association of Community Councils, Thompson Recycling Centre, The Pas Recycling Committee, Indian and Northern Affairs Canada, Community Development Corporations, and Manitoba Product Stewardship Board.

NSWC is a forum where stakeholders can develop long-term, regionalized waste management plans for recycling, landfills, and waste-transfer stations. The Committee's goal is to facilitate planning and development of sustainable and environmentally-sound waste management systems in partnership with northern communities. NSWC will identify unique challenges facing remote and northern communities in regionalized waste management and implementing new approaches to management practices.

Orphan Mine Sites Program

Staff arranged a Minister's tour of orphan mine sites at Lynn Lake and Sherridon and met with Lynn Lake Town Council, Marcel Colomb First Nation, and Sherridon Community Council to discuss environmental and resource-management issues. These resulted in direction to develop a strategy for orphan mine sites. Jointly with Manitoba Industry, Trade and Mines, a rehabilitation program is being developed for dealing with environmental, health, and safety issues at each site. Industry, Trade and Mines will lead site rehabilitation. The program has employed a consultant to assess Lynn Lake East Tailings Management Area and develop a remedial action plan.

Northern Regions Drinking Water Program

Municipal drinking water quality remains a high priority. As part of Northern Regions Public Drinking Water Program, all 37 public system owners and operators were reminded of their monitoring, testing and operating responsibilities under ***The Public Health Act***. Staff sampled for 34 water-quality parameters on all public systems. Thorough evaluations were conducted and reported to Mayors and Councillors on status of their drinking water. Six *Boil Orders* were issued in consultation with Medical Officers of Health. Systems failures were quickly identified as distribution-line and chlorine-residual level failures.

In general, bacteriological water quality of all systems was good and within acceptable standards. Feasibility studies and/or phased upgrading to community water-treatment plants are underway in Leaf Rapids, Snow Lake, The Pas, Cold Lake, Lynn Lake, South Indian Lake, and Cross Lake.

South Central Region

Well Water Sampling

The Chief Medical Officer of Health directed municipalities to test water supplies under their jurisdiction. The Region was extensively involved with *Boil Water Advisories*, on-site contamination assessments, and placarding of wells found to be contaminated. Many municipal well locations, including arenas, rinks, halls, public and private campgrounds, and food-service operations, were involved in well-remediation programs. Staff advised on shock-chlorination procedures, and assisted sampling and interpretation of results. Two communities are seeking long-term solutions and remain on *Boil Water Advisories*.

Manure Condo/Mountain Organics

The Region issued a *Permit* to Rural Municipality of Lorne for construction of an aboveground steel manure storage by a manure storage cooperative. This allows smaller swine producers to avoid winter spreading by pooling manure in a central location. This creates a more environmentally-sustainable swine industry and allows small producers to compete with larger enterprises.

Portage la Prairie Water Supply

Routine analysis of Portage la Prairie water supply indicated that some old lead connections had slightly elevated lead concentrations. Following meeting with Manitoba Health and Manitoba Conservation, the City inventoried lead service lines and began a remedial program to replace them. In addition, the City is notifying homeowners so that they can replace private waterlines.

Eastern Interlake Region

Contaminated Drinking Water Supplies

Drinking water quality became an issue in a number of communities. Many private wells were found to be contaminated by coliform bacteria. Coliform bacteria were also detected in water supply systems that used untreated surface water. Staff assisted sampling of hundreds of private wells, notifying residents of water quality, and advising residents on disinfection and protection of water supplies. *Boil Water Advisories* were issued to Municipalities and residents in Tyndall, Garson, Balmoral, Elma, and Great Falls. The *Advisories* will remain in effect until water quality issues are resolved.

Solid Waste Management

A lot of work is being done on solid waste management. Staff were involved in closure of waste-disposal grounds, review and permitting of new transfer stations, and working with municipalities to develop waste-management programs. A number of waste-disposal grounds were closed, some of which were converted to waste transfer stations. Transfer stations were located in new areas. Some Municipalities ceased to operate disposal grounds and began hauling waste elsewhere; active waste disposal grounds declined from 134 (1991) to 44 (there are 19 waste-transfer stations). These trends are expected to continue.

Park West Region

Food Safe Program

A successful Food Safe Program was conducted throughout the Region. Monthly courses were taught at Assiniboine Community College (Brandon) and outreach programs were held in Swan River, Dauphin, Souris, Birtle, and Neepawa. Overall over 500 students graduated from the Program.

Through meetings with staff at Assiniboine College the program will be updated for next year. Success of the program is due to College staff, who did a fine job.

Environmental Air Monitoring

Staff continued work with Petroleum Branch on air monitoring for hydrogen sulphide and sulphur dioxide in Virden and Waskada. Monitoring trailers were set up in these communities; staff continued to assist monitoring and interpretation of data.

Louisiana Pacific Canada

The Department is working with Louisiana Pacific Canada to manage bark, flake and yard waste. An incinerator will be commissioned to take care of excess bark. The Company is exploring other uses for bark and flake. Some bark is used as fuel at Tolko's mill in The Pas. A new wet burner is proposed. A Citizen Liaison Committee meeting will be held to ensure that stakeholders are informed of changes to the facility.

Water Program

The year was busy in water sampling, analysis and monitoring. Owners of public systems were again notified of their responsibilities, emphasizing treatment and sampling schedules.

Directives to municipal offices and local newspapers advised users to ensure wells were safe from sources of contamination. Well users were advised to have bacteriological analysis done at least annually.

Staff sampled numerous semi-public systems (such as trailer courts, schools, hospitals, personal care homes, and food establishments) serviced by wells and sand points.

The Region investigated an *E. coli 0157* outbreak near Elkhorn. Source of outbreak was not identified, but all wells, food, and soil samples from the property were analyzed in co-operation with Manitoba Health.

Table EM.4

12-6(a) Environmental Operations

Expenditures by Sub-appropriation	Actual 2000/01	Estimate 2000/01		Variance Over/(Under)	Expl. No.
	$	FTE	$		
Total Salaries and Employee Benefits	4,889.9	94.00	5,012.6	(122.7)	
Other Expenditures	1,301.3		1,507.8	(206.5)	
- Grants/Transfer Payments	0.9		0.9	0.0	
Total Other Expenditures	1,302.2		1,508.7	(206.5)	

Environmental Management

Air Quality Management

To measure air quality and provide scientific and technical support for its enhancement and protection, the Section:

- Develops and reviews objectives and guidelines for pollutants of concern,

- Monitors ambient air quality in urban areas and near selected industrial sources to measure adherence to objectives and guidelines,
- Undertakes special project investigations,
- Provides scientific and technical support to the Department, other agencies and the public,
- Prepares reports and evaluates peer reports,
- Assists review and assessment of developments and provides comments for licensing,
- Participates in development and implementation of national strategies, and
- Assists development of strategies to address global climate change.

Table EM.5 Air Quality Management Activities, 2000-01

Activity	Number
National Air Pollution Surveillance - number of urban stations operated	2
Monitoring industries with air emissions - number of stations operated	4[1]
Participation in federal/provincial committees	8
Support to major Department priorities	4
The Environment Act and The Dangerous Goods Handling and Transportation Act proposals / licences - reviewed - comments provided	 54 / 38 17 / 4
Participation in standard development/implementation (Canada-wide Standards)	4
Presentations	9
Requests for information (data, criteria, technical information, etc.)	11

[1] One site operated jointly with the Environmental Operations Division.

Tilston Area Air Quality: special monitoring for sulphur dioxide, hydrogen sulphide, various volatile organic compounds and aldehydes/ketones continued until June. Thereafter, scaled-back monitoring continued in other communities in oil-producing area. The Section continued work with other Departments, the community, and industry to resolve air-quality issues associated with oil extraction.

Flin Flon Air Quality: monitoring for sulphur dioxide, particulate matter, and selected heavy metals continued as part of a broader monitoring network, with regular findings reports. Recent improvements by industry appear to have improved air quality.

Air Quality Data Management System: implementation of the new system continued.

Air Monitoring Equipment Renewal: new monitoring equipment for measuring fine particulate matter was acquired and will be installed in Flin Flon and Brandon.

Canada-Wide Standards: participation continued in development of national standards for particulate matter, ozone, dioxins/furans and mercury, including initial actions for reducing releases of these substances into the environment.

Other Support Activities: support was provided to the Department's Emergency Response Team and to annual inspections of livestock facilities.

Terrestrial Quality Management

The Section identifies, evaluates and manages risks to the environment and human health, using innovative, scientifically credible problem-solving methods by:

- Monitoring quality of the terrestrial environment (soils, vegetation, and wildlife);

- Providing scientific and technical support toward maintaining quality of ecosystems and restoring degraded environments to healthy condition; and,
- Collecting data to assist understanding of complex interactions of ecosystem components (soil, vegetation, wildlife, habitat) so that landuse decision-making will be based on sound ecological principles and all potential environmental effects of developments are considered.

The Section maintains a network of monitoring sites and conducts issue-based environmental studies to define terrestrial ecosystem quality. The Section liaises with peers in the scientific community and produces and distributes environmental information.

Activities include:

- Conducting studies to determine if soils, vegetation communities, and wildlife are contaminated.
- Documenting impacts of contaminants and landuse practices on terrestrial ecosystems.
- Establishing and maintaining data files.
- Preparing reports and evaluating peer reports.
- Promoting development and application of guidelines, objectives and standards for terrestrial ecosystem components (includes participation in developing Canadian Council of Ministers of the Environment *Canada-Wide Standards*, and other guidelines and best practices for preventing environmental contamination from industrial and other sources).
- Reviewing development proposals, identifying potential impacts on environmental quality and providing recommendations for licensing purposes.
- Assessing applications for funding to the Sustainable Development Innovations Fund and EcoAction2000.
- Providing scientific and technical support to government.
- Providing information and advice to public, local and environmental groups, Aboriginal communities, consultants, industry, and other government jurisdictions.
- Providing technical assessment to communities using groundwater for drinking, in response to water quality concerns.

Table EM.6 Terrestrial Quality Management Activities 2000-01

Activity	Units	Number		
		98/99[1]	99/00[1]	00/01
Vegetation survey of bogs in which peat harvesting is proposed, to evaluate potential impacts	Sites			2
Monitored for wood treatment chemicals in ground and surface water at Neepawa and Roblin wood treatment plants.	Times/year	2	2	1
Sampled blueberries in the vicinity of Flin Flon (plus a background site), to determine concentration of heavy metals in fruit and leaves	Sites			13
Baseline monitoring of soil quality and biological composition (plants and birds) of a floodplain forest ecosystem along Assiniboine River.	Plots/ quadrats			3/30
Monitored revegetation success of native versus domestic plant species in revegetation trials of recently reconstructed dykes along Assiniboine River.	Sites/ quadrats			4/ 120
Technical review of ***Environment Act, Dangerous Goods Handling and Transportation Act*** proposals.	Proposals	79	57	55
Technical review of draft ***Environment Act, Dangerous Goods Handling and Transportation Act*** *Licences*	Licences	58	39	39
Monitored vegetation in Tilston area for effects of flare-gas emissions from oil-processing batteries.	Visits/ sites		3/14	2/5
Conduct other site-specific investigations	Number	3	5	2
Prepare technical reports and data/information summaries.	Reports, etc.	7	3	4

Louisiana-Pacific Stakeholder Advisory Committee meetings	Meetings	2	2	3
Contaminated sites: technical recommendations	Sites	2	6	30
Respond to requests for data/information	Responses	30	25	70
Respond to requests for soil quality standards	Responses	12	15	20
Respond to requests for information on treated wood use and disposal	Responses	3	5	2
Committee participation	Committees	14	14	14
Departmental integration teams participation	Integration teams		2	3

[1] Comparisons to other years is not always provided, because long-term monitoring is done once every five-years. Long-term monitoring is scheduled for different years on a rotational cycle, so that, in the course of a five-year period, each project is done once.

Water Quality Management

To assist protecting and rehabilitating aquatic ecosystems through application of principles of sustainable development and innovative management of risks, the Section:

- Operates an ambient monitoring network on major streams and lakes, and recreational beaches, assisted by volunteers, organizations such as Conservation Districts, and Regional staff,
- Conducts issue-based, site-specific studies, usually by intensive short-term sampling, to assess point and non-point source impacts from agriculture, mining, forestry, municipal discharges, and others,
- Co-operates with industry, government, and others to protect water quality from impacts arising from agricultural diversification,
- Supports and participates in scientific studies to better understand impacts of human disturbance on ecosystem structure and function,
- Develops and recommends water quality standards, objectives, and guidelines to protect water quality and ecosystem integrity,
- Provides technical and scientific support to the Department, government agencies, Clean Environment Commission, and others,
- Co-operates with neighbouring jurisdictions to protect water quality from upstream developments,
- Addresses non-point source pollution in partnership with volunteers, municipalities, and others,
- Educates volunteers and citizen groups to foster awareness and empower local stewardship. Activities include presentations, short non-technical articles for newsletters appropriate to the audience, and comprehensive widely-distributed documents such as ***Manitoba Clean Water Guide***,
- Reviews proposals under ***The Environment Act*** and ***The Dangerous Goods Handling and Transportation Act***,
- Leads aquatic ecosystem protection, including participating in local, provincial, regional, national, and international committees to address specific issues and to develop coordinated actions,
- Administers the ***Canada-Manitoba Water Quality Monitoring Agreement***,
- Develops and implements co-operative, proactive strategies to prevent invasion by zebra mussels and other foreign aquatic species,
- Contributes to sustainability reporting, including operation of ambient monitoring sites in several ecozones, database maintenance, and incorporation of community- and ecosystem-level monitoring and reporting tools to provide information on sustainability indicators including *Canadian Water Quality Index*,
- Manages acquisition of on-going, high-quality laboratory analytical services for the Department, and,
- Manages water quality data in a secure, user-friendly system that meets complex, on-going needs of the Section, Department, clients, and partners.

Priority Activities

- Activities in the south included experimental studies at South Tobacco Creek, participated in science meetings for Livestock Review Panel, and assisted development of a risk-based protocol to assess intensive livestock facilities.
- Developed and sustained partnerships with cottage-owner associations, lake and stream stewardship groups, Conservation Districts, municipalities, and other local authorities, to collect water quality information and develop cooperative, basin-wide approaches to maintaining and rehabilitating water quality. New partnerships were developed, and most existing relationships were maintained.
- Ambient water quality monitoring activities continued at 57 sites. Up to 100 water-quality variables are measured at most sites year-round, while bottom invertebrate community was assessed at 22 sites. Both water chemistry and structure of the invertebrate community assist in determining ecosystem health. Data are requested by external stakeholders, and are used by the Department, for example, to determine assimilative capacity for discharge licencing under ***The Environment Act***.
- Water quality was monitored at 48 beaches and information was posted on the Department's Internet web page. Shoal Lake, source of Winnipeg's drinking water, was also monitored.
- Significant revisions to *Manitoba Water Quality Standards, Objectives, and Guidelines* were proposed and released for review. Comments were incorporated and a technical draft released for more detailed review. Important revisions include adding protection of groundwater, protection of broader ecosystem integrity, updated standards, objectives, and guidelines for over 100 materials, and harmonization with principles of the Canadian Council of Ministers of the Environment. The Section is represented on the Council's Water Quality Guidelines Task Group.
- A draft *Nutrient Management Strategy* was released for review. Artificial enrichment of streams and lakes with plant nutrients such as phosphorus and nitrogen is a major water quality issue. Virtually all man's activities, including municipal and industrial discharges, agricultural activities, forestry, and discharges from cottages, play a role. The *Nutrient Management Strategy* will lead to more appropriate water quality objectives for prairie streams and receiving lakes such as Lake Winnipeg, and developing an implementation plan if reductions are required.
- Pursuant to the *Nutrient Management Strategy*, considerable water quality work on Lake Winnipeg sought to better understand its condition, and develop a water quality model to assist better managing nutrient inputs.
- Leadership was provided to develop and initiate a 3-year water quality study on Assiniboine River, to facilitate managing effluent discharges to the river.
- Because over 70% of Manitoba's surface water originates in other jurisdictions, the Section plays a major role in ensuring that transboundary water quality is protected and of sufficiently good quality to meet our needs. Support is provided to oppose interbasin transfer of water and the threat posed by aquatic nuisance species from proposed Devils Lake outlet and Garrison Diversion Project. The Section participates on such international committees as the International Joint Commission's International Red River Board and the Canada-United States Garrison Joint Technical Committee.
- The Section led Provincial participation in development of a Watershed Management Plan for Shoal Lake, source of Winnipeg's water supply, with Ontario, Canada, and five First Nations.
- Significant effort was dedicated to programs and coordinated efforts to prevent zebra mussel and other nuisance aquatic species from being introduced. The Section continued participation on executive committee of Western Regional Panel on Aquatic Nuisance Species and participated in 100th Meridian Project—a project to prevent zebra mussel from moving past the 100th Meridian, which transects North America east of Brandon. The Section supervised 8 students employed through STEP and Green Team to inspect boats and other equipment at major border crossings.
- Greater emphasis was placed on groundwater quality, including expert advice on developments potentially affecting groundwater, water quality studies to better understand impacts from agricultural diversification, and assisting contaminated-site management.
- Considerable effort was directed towards preparation of a *Request for Proposals* and subsequent contract to obtain high-quality analytical chemistry and biological services from qualified laboratories to support scientific and regulatory programs.

- Assisted acquisition and modification of Alberta's Environmental Management System. This complex data management system will manage the Section's half-million water-quality data records and provide access to the Department through the Intranet.

Table EM.7
Water Quality Management Activities 2000-01

Activity	Number
Water Quality Monitoring and Studies	
Surface monitoring sites routinely operated for water chemistry	57
Surface monitoring sites routinely operated for indicators of biological health	22
Biomonitoring sites	1
Coordination of volunteer-operated monitoring sites	82
Coordination of volunteer-operated sampling of raw water supplies for toxic algae	12
Issue-based, site-specific studies	21
Coordination of monitoring at recreational beaches	48
Reports, Presentations, Scientific Reviews, Inquiries, etc.	
Preparation and contributions to technical and non-technical reports	17
Preparation of brochures	0
Presentations	58
Media interviews	44
Requests for data	125
Coordination or participation in workshops, public displays, etc.	10
Responses to telephone and e-mail inquiries from public, government agencies, consulting firms, etc.	11,263
Review and provide comments on proposals received under ***The Environment Act*** and ***The Dangerous Goods Transportation and Handling Act***, and other documents submitted for scientific review including proposals for funding through the ***Sustainable Development Innovations Fund***.	175

State of Environment Reporting

The Section is responsible for:

- Collection, compilation, and interpretation of information about environmental quality, projected trends, and environmental and sustainable development activities.
- Coordinating development of sustainability indicators and preparing sustainability reports, in accordance with Part 5 of ***The Sustainable Development Act***.

The following activities are carried out:

- Coordinating tasks related to development of draft set of provincial sustainability indicators on behalf of Manitoba Round Table on Sustainable Development.
- Coordinating internal and external contributions to sustainability reports.
- Preparing indicator bulletins and fact sheets.

- Liaison with provincial, federal and other agencies responsible for environmental management, SOE and sustainability reporting.

The main focus for the Section continued to be development of a draft set of provincial sustainability indicators. Public consultations on a proposed set were held, from which a *What You Told Us* document was compiled and released. The proposed indicators and feedback from the public also underwent a technical review, with recommendations made to the Manitoba Round Table. The Round Table will report to government on sustainability indicators for the province.

The SOE Section provided secretariat to the Manitoba Round Table for Sustainable Development. More information on Manitoba Round Table can be found in the Sustainable Development Coordination section.

Pollution Prevention

The Branch promotes shift in Manitoba's approach to environmental protection, from control and remediation, to prevention. The Branch manages ***The Waste Reduction and Prevention Act*** and ***The Ozone Depleting Substances Act***, and leads promotion of practices that avoid the creation of waste and pollutants at source. The Branch is active in four program areas:
1) Waste Reduction,
2) Pollution Prevention,
3) Environmentally Sustainable Practices, and
4) Funding Programs.

Waste Reduction

The Branch works to achieve the Province's commitment of reducing solid waste going to waste disposal grounds. Significant progress was made in developing and promoting sustainable alternatives to waste disposal.

Since ***The Waste Reduction and Prevention Act*** was adopted (1990), recycling increased substantially. Cost-effective working models were established that demonstrate how producer responsibility can reduce disposal volumes, and shift costs for product stewardship to industry and consumers, from local government and taxpayers.

A national survey to monitor progress in waste minimization indicates that, in 1998, Manitobans disposed of 850 kilograms of waste per capita at 314 waste disposal grounds. This is 16% less than 1988.

The Branch continued to focus on programs that aim to:
(a) reduce volume of waste generated and disposed;
(b) separate hazardous from non-hazardous waste; and,
(c) improve waste disposal facilities.

Staff participated on such committees as Federation of Canadian Municipalities Waste Minimization Advisory Committee, and the City of Winnipeg's Waste Minimization Advisory Committee.

The Branch participated in the Taiwan/Canada Resource Recovery Workshop in Taipei. The workshop was organized under the *Memorandum of Understanding on Environmental Cooperation* between Taiwan Ministry of Foreign Affairs and Canadian Trade Office. Over 100 people heard presentations by Canadian delegates on experience with recycling, waste reduction, and extended producer responsibility programs.

Used Oil Recycling

The stewardship program for used oil, filters and containers completed a third year. The *Used Oil, Oil Filters and Containers Stewardship Regulation* prohibits sale of lubricating oil products unless the vendor is registered and belongs to the stewardship program operated by Manitoba Association for Resource Recovery Corporation (MARCC). Purchases of lubricating products decreased by 4% from last year. Oil recovery declined 6% to 11,200,00 litres of used oil. Filter recovery grew 10% to 1,430,000 filters. Container recovery increased 26% to 116,000 kgs of oil container waste. MARRC's recovery network expanded by adding five Eco-Centers.

MARRC has 109 members. As part of their membership agreement, vendors must pay Environmental Handling Charges based on product sales. There were 33 Eco-Centres in partnership with municipal governments and four privately-operated depots. Winnipeg has a lower level of service than is desirable; four facilities are licensed to collect used oil.

Multi-Material Recycling

Manitoba Product Stewardship Corporation (MPSC) is a statutory corporation (established 1995) under *Multi-Material Stewardship Regulation* to implement waste-reduction programs for designated product packaging and paper products, managed by a 10-member stakeholder Board of Directors. Revenue is derived from a 2¢/beverage container levy paid by distributors. The Corporation supported 160 municipal recycling programs, ensuring that over 95% of Manitobans have recycling services. MPSC, reporting on 1999-00, collected $6.6 million in container levy; paid out $4.9 million in Municipal Recycling Support payments; and, recovered 35,500 metric tonnes (41%) of estimated 87,000 metric tonnes of eligible material.

While progress has been encouraging, by-material and per-capita recovery rates indicate that need remains for improved residential recovery levels and programs to recover materials such as plastic and aluminum beverage containers from non-residential sources. On average, Manitobans recycled an estimated 30 kgs per capita from their homes in 1999.

Table EM.8

By-material Recovery Rates, 1999

Eligible Material	Total Tonnes Recovered	Measured Generation (Tonnes)	Recovery Rate
Newspapers, Flyers & Telephone Directories	19,180	34,315	56%
Glass Containers	4,504	12,703	37%
Magazines	3,364	5,749	59%
Boxboard	1,874	8,558	22%
Residential Corrugated Cardboard	2,456	11,022	22%
Steel Cans	1,170	4,431	26%
PET #1 Plastic Containers	924	2,443	38%
HDPE #2 Plastic Containers	957	3,661	26%
Aluminum Cans	523	2,086	25%
Gable Top Cartons and Aseptic Containers	500	1,917	26%
Total	**35,452**	**86,885**	**41%**

Tire Recycling

Tire Stewardship Board's Scrap Tire Recycling Program (established 1995) is funded by a $2.80 levy on new tires sold for licensed vehicles. Preliminary estimates indicate that the Board raised $2,732,317 in levies and interest and spent $2,499,408 on tire recycling and $452,404 on administration and operations, for a net drawdown of the accumulated surplus of $219,495.

The Board has removed most stockpiled tires. The program is recycling one tire for every tire sold and is considered one of the most successful programs of its kind in North America.

Regional Waste Management

The Branch continues to pursue development of regional waste management systems. Ten regional management systems for solid waste, involving three or more partners, were operating. Over 50 waste transfer stations have been established, replacing local disposal grounds, while an additional eight regional waste-management partnerships are being planned.

To encourage regional integrated waste-management systems, the Branch coordinated Regional Waste Management Task Force. The Task Force's report, ***A Regional Solid Waste Management Action Plan and Recommendations***, envisions a province-wide solid waste management system that minimizes risk to human health and to the environment, and supports continued economic growth.

The Branch continued additional waste-management policy initiatives. Diversion of organic wastes through composting, improved construction and demolition waste management, and waste-management facility operating guidelines were identified as needing further development.

Guided by the Task Force report, a Solid Waste Management Committee was established that co-ordinated:

- Training course for 32 waste disposal ground operators, Environment Officers, and First Nations representatives.
- Draft facility guidelines for composting operations, waste disposal grounds, and transfer stations.
- Guidelines for managing construction and demolition wastes, and grain elevator demolition.
- Model regional GIS information and mapping project for waste disposal grounds.
- Northern Waste Management Committee to address regional waste management and reduction issues of specific interest to northern communities.

Construction and Demolition (C&D) Waste

Aided by Solid Waste Management Committee, the Branch prepared *Construction and Demolition Waste Disposal Guidelines* to build on broad public consultations, policies, regulations and programs previously developed under ***The Waste Reduction and Prevention Act***. The *Guidelines* will provide sufficient guidance to local governments, building owners, landowners and demolition and hauling contractors for C&D waste diversion from landfills, and to prevent illegal dumping.

Household Hazardous Waste (HHW)

The Department's HHW collection program sponsored 14 rural and 16 Winnipeg events and collected 419 tonnes of hazardous waste. This program has not been able to meet public demand for service and collected only 21% of HHW generated. The Household Hazardous Waste Management Committee, a stakeholder committee of municipal governments, industry and citizen group representatives, determined a need for a program to reduce generation of HHW and improve recovery rates.

The Branch continued to pursue diversion of HHW from landfills and the ecosystem. Branch personnel led a process involving HHWM Committee and stakeholders to obtain consensus on a *distributor responsibility* program. The Committee's recommendations were endorsed and a draft regulation and proposed approach for HHW management were developed. Public consultation on the draft regulation and proposed approach will proceed with the goal of establishing an expanded HHW system.

Pollution Prevention

The Branch promotes pollution prevention as the environmental management strategy of choice, working in partnership with Manitoba Division of Canadian Manufacturers and Exporters Canada and Environment Canada.

The Branch continued to assist Manitoba Green Printing Project, comprising 19 companies that participate in such activities as Manitoba Green Procurement Network's printshop audits. ***Manitoba Pollution Prevention Guide for Printers***, produced last year, was used.

Manitoba Metal Finishing Project, promoting goals of the National Toxics Reduction Initiative, contacted 38 firms and conducted 10 plant visits. Wood Finishers in Manitoba initiated a sector-wide approach and plans to launch its activities next year. Auto Body/Auto Repair sector also initiated a sector-wide approach, and is developing a manual to provide technical support to operators.

Manitoba Golf Superintendents Association distributed an *Environmental Self-Assessment Checklist* (1999) to foster sound environmental practices on golf courses. Over 30 courses have been visited, and infrastructure and operational changes have been implemented.

The Branch assisted development of *Canada-wide Standards* and a *Code of Practice* for steel mills.

The Branch continued to provide on-site assistance to other businesses and industry associations. Staff engaged in voluntary partnerships with Manitoba Heavy Construction Association, Chambers of Commerce, and Prairie Grain Elevator Association. The Branch continues to work with, promote, and provide information and training services to organizations, including the University of Winnipeg, University of Manitoba, Red River College, Centre for Indigenous Environmental Resources, City of Winnipeg, Manitoba Quality Network, Environmental Managers Network, Canadian Prairies and Northern Region of the Air and Waste Management Association, Manitoba Environmental Industries Association, Green Procurement Network, and National Research Council/Industrial Research Assistance Program.

Environmentally Sustainable Practices

The Branch promotes environmentally sustainable practices. Cooperative approaches and partnerships with various stakeholder organizations are pursued.

Ozone Depleting Substances

Manitoba Ozone Protection Industry Association (MOPIA) and ***The Ozone Depleting Substances Act and Regulation*** were established to restrict use of ozone depleting substances (ODS) and protect stratospheric ozone. Stratospheric ozone levels are near their lowest point since measurements began. By working with MOPIA, the goal is to reduce, and eventually eliminate, release of ODS to the atmosphere.

Consultations on a national level were initiated with industry stakeholders on a draft national strategy to accelerate phase-out of CFCs and Halons and dispose of surplus stocks. As a result of the draft strategy, additional consultations with industry stakeholders on amendments to regulations were initiated to meet national and international commitments under *Montreal Protocol* and to meet Manitoba's commitment under *National Action Plan*. Implementation of the strategy will further guard against destruction of the ozone layer, which limits harmful UV radiation from reaching earth and increasing rates of skin cancer.

Water Efficiency

Working in partnership with other federal and provincial departments, Manitoba Hydro, Association of Manitoba Municipalities, and several municipalities, staff continued to pilot a municipal water and energy audit—the Manitoba Municipal Efficiency Project. Reports for three municipalities were completed. Municipalities began to implement recommendations even before the reports were issued. Work continues to encourage further implementation and monitoring of results. The partners are seeking funding to complete audits for 150 municipalities.

Monthly water-related articles are coordinated through Water Efficiency Coordinator and submitted to ***Manitoba Cooperator***, an extremely economical and effective means of providing accurate and timely water-related information to the public.

As part of Winkler Aquifer Management Plan Education Initiative Action Group and the Oak Lake Aquifer Management Plan Education Committee, water efficiency and other-aquifer related educational material was developed and distributed to residents. Bill stuffers, newspaper articles, radio public service announcements, and work with local schools raised awareness of water efficiency and aquifer protection.

Town of Snow Lake has per-capita water consumption substantially higher than the national average. The Town and the Water Efficiency Coordinator launched a joint education initiative for Snow Lake residents, to encourage wise use of municipal water.

Water Efficiency Coordinator worked with a senior's gardening project to obtain funding and implement a rain-catchment system as primary water source.

Sustainable Development Procurement Guidelines

Pursuant to ***The Sustainable Development Act***, Cabinet adopted new Sustainable Development Procurement Guidelines to make practices environmentally sensitive. Manitoba is now required to consider provision of services and implications of purchases through product lifecycles, environmental preference, and sustainability.

A working group with Manitoba Transportation and Government Services (Procurement Services) reviewed submissions from Departments on a draft guideline submitted to Deputy Ministers. Manitoba Round Table for Sustainable Development also reviewed the draft prior to submission to Cabinet.

Under Cabinet direction, a Sustainable Development Implementation Committee co-chaired by the Branch is developing government-wide procurement goals. Departments are required to prepare *Departmental Action Plans* to meet the procurement goals by 1 January 2002.

Funding Programs

The Branch manages funding programs that support innovative solutions to environmental issues.

Sustainable Development Innovations Fund

Responsibility for administering Sustainable Development Innovations Fund (SDIF) was transferred to the Pollution Prevention Branch. The Fund was revamped with new criteria and priority program areas.

SDIF funds development, implementation and promotion of environmental innovation and sustainable development projects by local governments, industry, community and youth groups, Aboriginal organizations, and First Nation communities. SDIF provides grants through an Open category, which has several priority program areas, and through allocations targeted at specific issues.

Proposed projects must address one or more priority areas and achieve or demonstrate measurable progress toward achieving the Fund's objectives. They must be environmentally and ecologically sound, promote a sustainable approach, have clear environmental benefits, and take into account benefits to the community and the economy. Projects should also demonstrate involvement of youth wherever possible.

New Priority Program Areas are:

- Eco-tourism.
- Ecosystem Conservation.
- Environmental Technology Innovation and Demonstration.
- Northern Environmental Issues.

- Regional Waste Management.
- Sustainable Agricultural Practices.
- Sustainable Community Development.
- Understanding Our Environment.
- Water.

Specifically-targeted Allocations are:

- Environmental Youth Corps.
- Manitoba Climate Change Action Fund.
- Manitoba Orphan Mine Site Rehabilitation Program.
- Waste Reduction and Pollution Prevention Fund.

Proposals for Open category are assessed by government departments prior to submission to SDIF Advisory Review Committee for recommendation to the Minister. Projects over $25,000 are forwarded to Treasury Board for approval. 76 new projects were approved, expending $1,959,935.45. 17 projects were carried over from previous years, expending $113,968.85 in 2000-01. In sum, $2,073,320.30 was expended.

The Branch prepares reports and correspondence associated with administration of the Fund. Details on approved projects under the SDIF for Open category and the specific allocations are provided in a separate ***Annual Report***.

Waste Reduction and Pollution Prevention Fund

A new specific allocation under SDIF was created: Waste Reduction and Pollution Prevention (WRAPP) Fund is a four-year, $2.2 million commitment to help organizations, businesses and local governments achieve more sustainable waste management and pollution prevention. A major focus is developing public/private sector partnerships, local capacity for sustainable WRAPP activities, and demonstrating economic viability and environmental benefits of reducing waste and preventing pollution.

32 projects were reviewed and 16 approved, for $424,000; details are provided in the SDIF ***Annual Report***.

Environmental Youth Corps

EYC offers young people an opportunity to voluntarily participate in community-based, innovative projects that will help improve and protect the environment. Projects must address concerns relating to environmental protection, enhancement, rehabilitation, conservation and/or resource management and must provide hands-on experience for youth (aged up to 24). Maximum grants are $5,000.

The Branch continued management and administrative support for Environmental Youth Corps, which awarded grants totaling more than $82,000 for 27 projects involving 2,089 youths aged 5 through 24. Regional committees considered 29 grant applications. Further details are provided in the SDIF ***Annual Report***.

Table EM.9
12-6(b) Environmental Management

Expenditures by Sub-appropriation	Actual 2000/01 $	Estimate 2000/01 FTE	Estimate 2000/01 $	Variance Over/(Under)	Expl. No.
Total Salaries and Employee Benefits	1,587.5	28.00	1,523.9	63.6	
Other Expenditures	1,876.9		1,933.0	(56.1)	

Clean Environment Commission

Under ***The Environment Act***, the Clean Environment Commission provides a mechanism through which the public can participate in environmental decision-making. The Commission conducts public reviews and hearings into matters of environmental concern and provides advice and recommendations to the Minister of Conservation. The Commission, while reporting directly to the Minister, is independent of the Department.

The Commission's legislative mandate requires publication of its own ***Annual Report***, with particulars on its mandate and operations. Copies can be obtained from the Commission at 305-155 Carlton Street, Winnipeg, MB R3C 3H8. The Commission relocated its' offices from Steinbach to Winnipeg and can be contacted by telephone at 204-945-0594 or toll free at 1-800-597-3556 or by fax at 204-945-0090. The Commission's web site is www.cecmanitoba.ca. The Commission appointed new members and a new Chairman, Mr. Terry Duguid.

The following is a sampling of the Commission's activities:

- development of a long term Strategic Plan to guide Commission activities.
- hosted Climate Change Public Forum.
- report on Human Health and Electric and Magnetic Fields.
- publication of *Climate Change Primer for Manitoba*.
- investigation of Alternate Dispute Resolution opportunities.

Table EM.10
12-6(c) Clean Environment Commission

Expenditures by Sub-appropriation	Actual 2000/01 $	Estimate 2000/01 FTE	Estimate 2000/01 $	Variance Over/(Under)	Expl. No.
Total Salaries and Employee Benefits	220.2	3.00	292.0	(71.8)	
Other Expenditures	266.8		177.2	89.6	

Chapter 17

International Institute for Sustainable Development

The International Institute for Sustainable Development issues a separate ***Annual Report***.

Table IISD.1
12-7 International Institute for Sustainable Development

Expenditures by Sub-appropriation	Actual 2000/01 $	FTE	Estimate 2000/01 $	Variance Over/(Under)	Expl. No.
Total Other Expenditures	1,145.8		1,145.9	(0.1)	

Chapter 18

Infrastructure and Minor Capital Projects

Equipment

Departmental programs are supported by purchasing equipment and paying for minor infrastructure. Funding was allocated for computer hardware, office renovations and groundwater investigation equipment.

Table IM.1
12-8(a) Equipment

Expenditures by Sub-appropriation	Actual 2000/01	Estimate 2000/01		Variance Over/(Under)	Expl. No.
	$	FTE	$		
Total Other Expenditures	440.6		460.6	(20.0)	

Water Projects

Projects (most being multi-year) included Assiniboine River dyke refurbishment, construction along Netley Creek, refurbishment below the waterline of the west gate of the Red River Floodway's inlet structure control structure, and construction of a pumping station in near The Pas.

Several waterway crossings were replaced or repaired.

Table IM.2
12-8(b) Water Projects

Expenditures by Sub-appropriation	Actual 2000/01	Estimate 2000/01		Variance Over/(Under)	Expl. No.
	$	FTE	$		
Total Other Expenditures	4,204.2		4,565.4	(361.2)	

Park Facilities

The program replaced or improved major infrastructure, including campground expansion in Whiteshell Provincial Park (Big Whiteshell and Brereton Lake), and campground electrification in Bakers Narrows and Clearwater Lake Provincial Parks. Washroom buildings were upgraded throughout the system. Resurfacing of Grand Beach roads included widening for bicycle lanes. Additional work on the bicycle trail from Falcon Lake to West Hawk Lake was completed.

The sewage lagoon expansion at Falcon Lake was started and the solid waste transfer station for Hecla was undertaken.

Tabie IM.3
12-8(c) Park Facilities

Expenditures by Sub-appropriation	Actual 2000/01	Estimate 2000/01		Variance Over/(Under)	Expl. No.
	$	FTE	$		
Total Other Expenditures	4,182.5		4,189.3	(6.8)	

Recoverable from Capital Initiatives

$500,000 was provided in Water Projects capital appropriation for refurbishing the Red River Floodway. The costs of this program were recovered from the Capital Initiatives Program to this account to offset this cost.

Table IM.4
12-8(d) Recoverable from Capital Initiatives

Expenditures by Sub-appropriation	Actual 2000/01	Estimate 2000/01		Variance Over/(Under)	Expl. No.
	$	FTE	$		
Total Other Expenditures	0.0		0.0	0.0	

Chapter 19

Amortization of Capital Assets

With the respect to capital assets, the department expended the annual amortization costs of all completed assets based on the useful life of each asset. Assets which were purchased or constructed in 2000/01 were expensed at one-half the annual amortization rate. The amortization expense also included the portion of corporate information technology projects attributable to the Department.

Table ACA.1
12-9 Amortization of Capital Assets

Expenditures by Sub-appropriation	Actual 2000/01 $	Estimate 2000/01 FTE	Estimate 2000/01 $	Variance Over/(Under)	Expl. No.
Total Other Expenditures	2,467.8		2,386.2	81.6	

Chapter 20

Flood Proofing Programs

Funding assistance continued for moving, raising, or dyking homes, businesses and properties.

A $100 million, Phase II agreement with Canada to continue and complete flood recovery was administered. The $50 million provincial contribution was allocated among five program elements as follows:

1) home/business floodproofing ($20.3 million),
2) community dyking ($17.5 million),
3) City of Winnipeg work ($5.2 million),
4) environmental impact mitigation ($2.5 million), and
5) provincial flood control infrastructure ($4.5 million).

Administration of home and business flood proofing continued, providing funding to clients for a total federal/provincial expenditure of about $10.0 million. Co-ordination of community ring-dyke projects for communities in Red River Valley continued with completion of feasibility studies and development of contract documentation for construction. Community ring-dyke projects were completed at Gretna, Lowe Farm, Rosenfeld, St. Lazare, and St. Pierre. Substantial progress was made at other communities, including Ste. Agathe. To facilitate dyking at other communities, agreements are being signed with local authorities and land acquisition is under way. Federal/provincial expenditure for community dyking amounted to $11.4 million.

Construction of two notches in the south-easterly floodway embankment was initiated to allow about 3% more flow or about 2,000 cfs to enter during 1997-size floods, without increasing upstream water elevation. Restoration of Red River Floodway west dyke extension was completed and construction of a permanent west dyke along PR 305 continued.

Table FP.1
12-10 Flood Proofing Programs

Expenditures by Sub-appropriation	**Actual 2000/01**	**Estimate 2000/01**		**Variance Over/(Under)**	**Expl. No.**
	$	**FTE**	**$**		
Total Other Expenditures	24,593.2		37,204.7	(12,611.5)	

Chapter 21

Revenue and Expenditure Summaries

Table RES.1 Reconciliation Statement

Details	2000-01 Estimates
2000-01 Main Estimates	**150,641.7**
Allocation Of Funds From:	
- Canada Manitoba Enabling Vote	
- Internal Reform and Workforce Adjustment	1,522.2
- Service First Initiative	
2000-01 Estimate	**152,163.9**

Table RES.2 Revenue Summary

Revenue Summary By Source

For the year ended March 31, 2001 with comparative figures for the previous year

Actual		Increase		2000/01	2000/01		Expl.
1999/00	**2000/01**	**(Decrease)**	**Source**	**Actual**	**Estimate**	**Variance**	**#**
			GOVERNMENT OF CANADA:				
151.0	151.0	0.0	1. Migratory Waterfowl Crop Damage Prevention Agreement	151.0	151.0	0.0	
10,193.4	10,259.8	66.4	2. 1997 Flood Proofing Program	10,259.8	15,948.4	(5,688.6)	1
10,344.4	10,410.8	66.4	**Sub-Total**	10,410.8	16,099.4	(5,688.6)	
			CURRENT OPERATING PROGRAMS:				
238.7	256.1	17.4	(a) Environment Fees and Sundry	256.1	189.5	66.6	2
253.9	290.2	36.3	(b) Fisheries Fees and Sundry	290.2	255.8	34.4	3
179.4	0.0	(179.4)	(c) 1997 Flood Proofing Program	0.0	1,723.4	(1,723.4)	4
6,406.1	6,045.1	(361.0)	(d) Forestry Fees and Sundry	6,045.1	6,547.0	(501.9)	5
2,324.7	2,978.3	653.6	(e) Land Information Sales and Fees	2,978.3	3,668.8	(690.5)	6
5,990.5	5,890.3	(100.2)	(f) Licence Sales by Vendors	5,890.3	5,708.0	182.3	7
9,109.0	9,211.6	102.6	(g) Parks Fees	9,211.6	8,432.6	779.0	8
3,016.5	1,677.7	(1,338.8)	(h) Regional Operations Fees and Cost Recovery	1,677.7	820.0	857.7	9
48,724.5	53,368.7	4,644.2	(i) Water Power Rentals	53,368.7	46,500.0	6,868.7	10
133.0	315.1	182.1	(j) Water Resources Sundry	315.1	76.0	239.1	11
39.6	50.0	10.4	(k) Wildlife Sundry	50.0	36.0	14.0	
306.6	311.4	4.8	(l) Sundry	311.4	817.2	(505.8)	12
76,722.5	80,394.5	3,672.0	Sub-Total	80,394.5	74,774.3	5,620.2	
87,066.9	**90,805.3**	**3,738.4**	**Total Revenue**	**90,805.3**	**90,873.7**	**(68.4)**	
12.8	47.0	34.2	Sale of Government Assets	47.0	600.0	(553.0)	13

Explanation Number:

1. Flood Proofing revenue is lower than the 2000/01 Estimate and lower than 1999/2000 due to reduced claims under the Home and Business component, and reduced activity in the Community Diking program.
2. Increase in Environmental Fees and Sundry revenue is due to a higher number of Class 3 Environmental Assessment licence fees collected.
3. Increase in Fisheries Fees and Sundry revenue is due to funding support from the Freshwater Institute to assist in a project to consolidate various Fisheries Branch information systems into a comprehensive "Corporate Data Base".
4. No revenue from the 1997 Flood Proofing Program is shown as collected as the accruals for the program were set up at the end of the year.
5. Revenue from Forestry and Sundry is lower due to decreased lumber prices and demand. Revenue from wood cut in the Treaty Land Entitlement areas was transferred to Trust. Fire damage wood charges in the FML's reduced to "zero" in the Eastern Region's Fire 54 area where Pine Falls Paper cut, and reduced to one half dues in the NW Region's Guthrie Fire area where Tolko cut.
6. Decrease in Land Information Sales and Fees revenue is due to fewer applications received and a delay in finalization of the contract with Trans Canada Pipeline result in a delay in processing billings for the fiscal year 2000/01.
7. Revenue from Licence Sales by Vendors is higher due to an increase in Sport Fishing and Big Game Licences.
8. Revenue from Park Fees is higher due to the sale of two north Shore Cottage lots as well as an increase in camping and Park Entrance fees.
9. Revenue from Regional Operations Fees and Cost Recovery is higher due to and increase of fire suppression activities provided to other jurisdictions as well as an increase in guide licence sales.
10. Revenue from Water Power Rentals is higher in 2000/01 due to an increase in demand for electricity, colder winter temperatures in Manitoba and mid-continent USA, as well as better water supply conditions than average.
11. Revenue from Water Resources Sundry in higher due to an increase in demand and favourable water supply.
12. Revenue from Sundry is lower due to the Manitoba Habitat refund recorded in the prior fiscal year. Also City of Winnipeg activity in flood proofing was not as high as originally anticipated.
13. Revenue from the Sale of Government Assets is lower due to a decrease in the number of properties being purchased under the Economic Anomalies component of the Flood Proofing Program. The Printed Estimate reflected $600.0 as a result of sales of these buildings, but with the recent approval to reduce the program level only approximately 25 rural properties will be purchased, the revenue is anticipated to be $30.0. TB#21A/2000-12(c).

Table RES.3

Expenditure Summary

Estimate 2000/01	Appropriation	Actual 2000/01	Actual 1999/00	Increase (Decrease)	Explanation Number
	12-1 Administration and Finance				
27.3	(a) Minister's Salary	27.1	41.3	(14.2)	
	(b) Executive Support:				
434.2	Salaries and Employee Benefits	430.7	897.5	(466.8)	1
123.8	Other Expenditures	198.8	199.2	(0.4)	
	(c) Administrative Services:				
1,172.1	Salaries and Employee Benefits	1,243.2	947.4	295.8	
450.9	Other Expenditures	454.1	432.0	22.1	
	(d) Financial Services:				
1,685.4	Salaries and Employee Benefits	1,738.7	1,635.8	102.9	
415.9	Other Expenditures	307.2	325.0	(17.8)	
	(e) Human Resource Management:				
764.0	Salaries and Employee Benefits	764.3	843.9	(79.6)	
105.4	Other Expenditures	101.4	80.2	21.2	
	(f) Resource Information Systems:				
1,046.0	Salaries and Employee Benefits	867.6	972.3	(104.7)	
385.6	Other Expenditures	369.0	354.8	14.2	
6,610.6	Total 12-1	6,502.1	6,729.4	(227.3)	

Estimate 2000/01	Appropriation	Actual 2000/01	Actual 1999/00	Increase (Decrease)	Explanation Number
	12-2 Regional Operations				
	(a) Headquarters Operations:				
1,461.0	Salaries and Employee Benefits	1,408.5	1,463.1	(54.6)	
1,245.4	Other Expenditures	1,043.5	1,038.0	5.5	
245.6	Problem Wildlife Control	264.6	218.7	45.9	2
	(b) Northwest Region:				
2,011.4	Salaries and Employee Benefits	2,011.9	1,892.7	119.2	3
678.5	Other Expenditures	721.4	688.6	32.8	
	(c) Northeast Region:				
2,151.3	Salaries and Employee Benefits	2,087.4	2,092.8	(5.4)	
948.9	Other Expenditures	944.4	974.1	(29.7)	
	(d) Central Region:				
4,447.2	Salaries and Employee Benefits	4,439.1	4,409.6	29.5	
1,715.2	Other Expenditures	1,692.0	1,664.2	27.8	
	(e) Eastern Region:				
3,306.2	Salaries and Employee Benefits	3,289.7	3,240.8	48.9	
1,006.6	Other Expenditures	991.4	983.5	7.9	
	(f) Western Region:				
4,252.8	Salaries and Employee Benefits	4,250.6	4,240.0	10.6	
1,587.4	Other Expenditures	1,583.4	1,595.6	(12.2)	
	(g) Fire Program				
4,418.3	Salaries and Employee Benefits	4,431.8	4,376.2	55.6	
7,611.1	Other Expenditures	7,231.4	7,272.3	(40.9)	
37,086.9	Total 12-2	36,391.1	36,150.2	240.9	
	12-3 Resource Programs				
	12-3A Water Resources				
	(1) Administration:				
251.4	Salaries and Employee Benefits	265.6	241.7	23.9	
771.7	Other Expenditures	1,631.8	597.5	1,034.3	4
25.0	Grant Assistance	0.0	4.9	(4.9)	
	(2) Water Licensing :				
659.3	Salaries and Employee Benefits	660.6	624.5	36.1	
45.8	Other Expenditures	32.3	26.2	6.1	
	(3) Water Planning and Development:				
1,024.4	Salaries and Employee Benefits	975.0	1,034.0	(59.0)	
87.9	Other Expenditures	103.5	108.3	(4.8)	
	(4) Surface Water Management:				
785.7	Salaries and Employee Benefits	678.3	738.9	(60.6)	
493.6	Other Expenditures	209.2	363.2	(154.0)	5
447.5	Canada-Manitoba Agreement for Water Quantity Surveys	447.5	421.6	25.9	
	(5) Groundwater Management:				
816.8	Salaries and Employee Benefits	802.0	715.7	86.3	
617.2	Other Expenditures	584.0	693.8	(109.8)	6
3,908.7	(6) Waterway Maintenance:	3,602.3	3,566.5	35.8	
9,935.0	Total 12-3A	9,992.1	9,136.8	855.3	
	12-3B Parks and Natural Areas				
	(1) Administration:				
367.5	Salaries and Employee Benefits	356.8	368.5	(11.7)	
428.2	Other Expenditures	443.8	400.5	43.3	
191.2	Grant Assistance	191.2	134.0	57.2	
	(2) Planning and Development:				
834.1	Salaries and Employee Benefits	897.5	805.8	91.7	
194.6	Other Expenditures	191.5	199.0	(7.5)	

Estimate 2000/01	Appropriation	Actual 2000/01	Actual 1999/00	Increase (Decrease)	Explanation Number
	(3) Park Districts:				
438.3	Salaries and Employee Benefits	425.4	453.2	(27.8)	
49.3	Other Expenditures	48.0	49.2	(1.2)	
	(4) Park Operations and Maintenance:				
9,993.4	Salaries and Employee Benefits	10,118.8	9,759.8	359.0	7
4,545.5	Other Expenditures	4,298.8	4,100.0	198.8	
	(5) Support Services:				
234.2	Salaries and Employee Benefits	255.1	240.0	15.1	
52.3	Other Expenditures	46.5	87.5	(41.0)	
17,328.6	Total 12-3B	17,273.4	16,597.5	675.9	
	12-3C Petroleum & Energy				
556.7	(1) Salaries and Employee Benefits	552.2	454.4	97.8	
281.6	(2) Other Expenditures	247.1	249.7	(2.6)	
838.3	Total 12-3C	799.3	704.1	95.2	
	12-3D Forestry				
	(1) Administration:				
342.6	Salaries and Employee Benefits	311.6	347.0	(35.4)	
447.7	Other Expenditures	420.0	395.8	24.2	
465.8	Grant Assistance	465.8	465.8	0.0	
	(2) Forest Resources Management:				
896.2	Salaries and Employee Benefits	882.8	888.4	(5.6)	
627.7	Other Expenditures	379.0	494.2	(115.2)	8
	(3) Forest Health and Ecology:				
1,668.2	Salaries and Employee Benefits	1,975.1	1,829.1	146.0	
2,637.2	Other Expenditures	2,118.7	2,306.6	(187.9)	
	(4) Forest Economics and Marketing:				
355.2	Salaries and Employee Benefits	347.9	350.5	(2.6)	
50.7	Other Expenditures	94.6	58.2	36.4	
1,411.9	(5) Forest Regeneration Stock	1,453.7	1,462.0	(8.3)	
-	(6) Pineland Forest Nursery:	-	-	-	
8,903.2	Total 12-3D	8,449.2	8,597.6	(148.4)	
	12-3E Fisheries				
	(1) Administration:				
119.8	Salaries and Employee Benefits	121.1	139.0	(17.9)	
203.3	Operating Expenditures	199.4	260.7	(61.3)	
	(2) Fish Culture:				
676.4	Salaries and Employee Benefits	694.6	684.3	10.3	
279.9	Operating Expenditures	276.9	281.1	(4.2)	
	(3) Fisheries Habitat Management:				
349.0	Salaries and Employee Benefits	346.1	350.8	(4.7)	
64.7	Operating Expenditures	86.9	59.8	27.1	
	(4) Sport and Commercial Fishing Management:				
597.1	Salaries and Employee Benefits	630.2	595.8	34.4	
74.6	Operating Expenditures	73.5	81.2	(7.7)	
250.0	(5) Northern Fishermen's Freight Assistance	410.0	250.0	160.0	9
350.0	(6) Fisheries Enhancement Initiative	349.8	349.1	0.7	
2,964.8	Total 12-3E	3,188.5	3,051.8	136.7	
	12-3F Wildlife				
	(1) Administration:				
364.1	Salaries and Employee Benefits	375.6	369.1	6.5	
414.4	Other Expenditures	436.5	452.1	(15.6)	
207.0	Grant Assistance	207.0	207.0	0.0	
	(2) Big Game and Fur Management:				
592.2	Salaries and Employee Benefits	569.1	578.9	(9.8)	

Estimate 2000/01	Appropriation	Actual 2000/01	Actual 1999/00	Increase (Decrease)	Explanation Number
195.4	Other Expenditures	219.5	209.6	9.9	
89.9	Grant Assistance	89.9	89.9	0.0	
	(3) Habitat and Land Management:				
711.6	Salaries and Employee Benefits	639.4	632.7	6.7	
152.5	Other Expenditures	124.0	144.4	(20.4)	
645.0	Grant Assistance	654.3	645.0	9.3	
	(4) Biodiversity Conservation				
321.9	Salaries and Employee Benefits	263.0	324.1	(61.1)	
114.2	Other Expenditures	86.9	95.5	(8.6)	
345.7	(5) Canada-Manitoba Waterfowl Damage Prevention Agreement	334.2	325.5	8.7	
225.0	(6) Wildlife Habitat Enhancement Initiative	214.9	224.7	(9.8)	
4,378.9	Total 12-3F	4,214.3	4,298.5	(84.2)	
	12-3G Computer Graphics				
533.9	Salaries and Employee Benefits	507.8	543.3	(35.5)	
164.5	Other Expenditures	85.0	52.8	32.2	
698.4	Total 12-3G	592.8	596.1	(3.3)	
50.0	**12-3H Habitat Enhancement Fund**	50.0	50.0	0.0	
432.1	**12-3J Special Conservation and Endangered Species Fund**	354.8	313.1	41.7	
45,529.3	Total 12-3	44,914.4	43,345.5	1,568.9	
	12-4 Land Information Centre				
	(a) Administration:				
526.4	Salaries and Employee Benefits	523.6	514.6	9.0	
697.8	Other Expenditures	704.0	683.8	20.2	
	(b) Crown Lands Operations:				
532.6	Salaries and Employee Benefits	467.2	465.3	1.9	
1,273.2	Other Expenditures	1,273.1	1,201.9	71.2	
	(c) Crown Lands Registry:				
223.1	Salaries and Employee Benefits	186.5	207.1	(20.6)	
219.0	Other Expenditures	144.6	63.4	81.2	
	(d) Survey Services:				
1,521.4	Salaries and Employee Benefits	1,251.6	1,241.7	9.9	
451.3	Other Expenditures	508.9	353.1	155.8	
(1,524.2)	Less: Recoverable from Other Appropriations	(1,522.4)	(1,158.4)	(364.0)	10
	(e) Remote Sensing:				
629.7	Salaries and Employee Benefits	644.4	634.9	9.5	
121.4	Other Expenditures	22.4	81.2	(58.8)	
(23.7)	Less: Recoverable from Other Appropriations	0.0	(5.3)	5.3	
	(f) Distribution Centre:				
373.6	Salaries and Employee Benefits	364.6	372.6	(8.0)	
326.9	Other Expenditures	326.0	299.1	26.9	
(95.0)	Less: Recoverable from Other Appropriations	(69.0)	(87.6)	18.6	
	(g) Land Mapping Services:				
496.5	Salaries and Employee Benefits	503.8	497.4	6.4	
240.2	Other Expenditures	191.1	202.7	(11.6)	
5,990.2	Total 12-4	5,520.4	5,567.5	(47.1)	
	12-5 Environmental Stewardship				
2,343.0	Salaries and Employee Benefits	2,300.0	2,352.0	(52.0)	
764.0	Other Expenditures	690.9	681.0	9.9	
83.5	Grant Assistance	68.6	72.4	(3.8)	
3,190.5	Total 12-5	3,059.5	3,105.4	(45.9)	

Estimate 2000/01	Appropriation	Actual 2000/01	Actual 1999/00	Increase (Decrease)	Explanation Number
	12-6 Environmental Management				
	(a) Environmental Operations				
5,012.6	Salaries and Employee Benefits	4,889.9	4,778.1	111.8	
1,507.8	Other Expenditures	1,301.3	1,265.2	36.1	
0.9	Grant Assistance	5.4	0.9	4.5	
	(b) Environmental Management				
1,523.9	Salaries and Employee Benefits	1,587.5	1,431.5	156.0	
1,933.0	Other Expenditures	1,876.9	1,942.8	(65.9)	
	(c) Clean Environment Commission				
292.0	Salaries and Employee Benefits	220.2	214.3	5.9	
177.2	Other Expenditures	266.8	70.7	196.1	11
10,447.4	Total 12-6	10,148.0	9,703.5	444.5	
1,145.9	**12-7 International Institute for Sustainable Development**	1,145.8	1,145.8	0.0	
1,145.9	Total 12-7	1,145.8	1,145.8	0.0	
	12-8 Infrastructure and Minor Capital Projects				
	(a) Equipment				
460.6	Other Expenditures	440.6	394.0	46.6	
	(b) Water Projects				
4,565.4	Other Expenditures	4,204.2	4,781.9	(577.7)	12
	(c) Park Facilities				
4,189.3	Other Expenditures	4,182.5	4,184.2	(1.7)	
	(d) Less: Recoverable from Capital Initiatives				
0.0	Other Expenditures	0.0	(1,499.7)	1,499.7	13
9,215.3	Total 12-8	8,827.3	7,860.4	966.9	
2,386.2	**12-9 Amortization of Capital Assets**	2,467.8	2,234.1	233.7	
2,386.2	Total 12-9	2,467.8	2,234.1	233.7	
37,204.7	**12-10 Flood Proofing Programs**	28,343.2	23,478.5	4,864.7	14
37,204.7	Total 12-10	28,343.2	23,478.5	4,864.7	
0.0	**1210 Court Judgement**	0.0	0.0	0.0	
158,807.0	**TOTAL EXPENDITURES**	**147,319.6**	**139,320.3**	**7,999.3**	
280.0	**B.7 Capital Investment - Natural Resources**	617.1	1,194.5	(577.4)	

Explanation Number:

1. *Decrease in expenditures is due to the amalgamation of the Departments of Environment and Natural Resources.*
2. *Increase in Problem Wildlife Control is due to higher costs for the Nuisance Beaver and Elk Intercept programs.*
3. *Increase in the Northern Region salaries is due to the General Salary Increases as per the MGEU Agreement.*
4. *Increase in Water Resources expenditures is due to a $1.0 million payment made to Fairford First Nations as approved by Treasury Board for Fairford Bridge Project.*
5. *In 2000/01, the Assiniboine River Advisory Board was disbanded and the Water Rights Legislation Review and the Water Retention Strategy did not proceed as planned.*
6. *Decrease in Groundwater Management expenditures is due to vacancies resulting in reduced field expenses and travel.*
7. *Increase in Park Operations and Maintenance salaries is due to the General Salary Increases.*
8. *Decrease in Forest Resources Management is due to delays in the Treasury Board approval process for Integration. The Department had a number of vacancies in 2000/01 due to staff moving and accepting positions in other government departments.*
9. *Increase in Northern Fishermen's Freight is due to updated freight assistance rates and the inclusion of mullet as an eligible species for freight assistance to northern fishermen.*

10. *Increase in Survey Services Recovery is due to survey work increases under NFA at Norway House and Cross Lake.*
11. *Increase in Clean Environment Commission expenditures is due to the addition of the Livestock Panel and additional costs related to the Livestock Initiative.*
12. *Decrease in Water Management expenditures is due to delays related to the Fairford Bridge Project.*
13. *Decrease in Waterway Crossing is due to the elimination of the Capital Initiatives program.*
14. *Increase Fairford First Nations accrual.*

Table RES.4

Five-Year Expenditure and Staffing Summary by Appropriation for Years Ending March 31, 1997 - March 31, 2001

	ACTUAL/*ADJUSTED ESTIMATES OF EXPENDITURE						ADJUSTED VOTE			
	1996/97		1997/98		1998/99		1999/2000		2000/2001	
	FTEs	$(000's)	FTEs	$(000's)	FTEs	$(000's)	FTEs	$(000's)	FTEs	$(000's)
Administration and Finance	111.33	6,162.3	111.33	6,059.0	107.83	6,139.1	108.83	6,729.4	99.83	6,502.1
Regional Operations	448.67	31,910.7	448.05	32,810.1	449.15	33,646.1	449.15	36,150.2	445.35	36,391.1
Resource Programs	500.51	40,546.5	500.54	41,132.2	503.04	41,531.6	509.12	43,345.5	506.29	44,914.4
Land Information Centre	94.00	5,446.8	93.00	5,345.6	93.00	5,202.9	93.00	5,567.5	92.00	5,520.4
Environmental Stewardship	42.25	2,709.7	42.00	2,449.1	46.00	2,954.1	41.50	3,105.4	39.50	3,059.5
Environmental Management	120.50	9,369.9	120.50	9,546.2	120.50	8,960.7	125.00	9,703.5	125.00	10,148.0
International Institute for Sustainable Development		1,145.9		916.8		1,145.8	-	1,145.8	-	1,145.8
Infrastructure and Minor Capital Projects	-	6,010.7	-	12,012.7	-	8,684.4	-	7,860.4	-	8,827.3
Amortization of Capital Assets	-	-	-	-	-	648.7	-	2,234.1	-	2,467.8
Sub-total, Operating Appropriations	1,317.26	103,302.5	1,315.42	110,271.7	1,319.52	108,913.4	1,326.60	115,841.8	1,307.97	118,976.4
Flood Proofing Programs	-	-	-	9,989.0	-	37,629.4	-	23,478.5	-	28,343.2
Court Judgement	-	-	-	-	-	123.5	-	-	-	-
TOTAL DEPARTMENT	1,317.26	103,302.5	1,315.42	120,260.7	1,319.52	146,666.3	1,326.60	139,320.3	1,307.97	147,319.6

*Adjusted figures reflect historical data on a comparable basis in those appropriations affected by re-organization, during the years under review.

Reflects the reorganization of the Department of Conservation January 2001.

Restructured to reflect the change in accounting policy implemented in 1999/2000 regarding tangible capital assets. Assets are expressed over their life expectancy. Capital is classified into three categories - minor, amortization and Capital Investment (see Part 4).

Chapter 22

Publications

Energy

Heating Systems 6, revised booklet
Water Heaters 7, revised booklet
Indoor Air Quality and Ventilation 8, revised booklet

Environmental Operations:

Dangerous Goods Training, Information Bulletin 2000-03E
Suppliers of Dangerous Goods Placards and Labels, Information Bulletin 2000-04E

Environmental Quality Management:

Fortin, R. 2000. **All About E. coli 0157:H7**. Prairie Water News 10(2):3.
Development of a Nutrient Management Strategy for Surface Waters in Southern Manitoba, Information Bulletin 2000-02E
Williamson, D. A. **Manitoba Water Quality Standards, Objectives, and Guidelines: Initial Draft for Information and Discussion, April 20, 2000**. Manitoba Conservation Report 2000-03
Green, D. J. and W. N. Turner. **South Tobacco Creek Manured Watershed Runoff Study: 2nd Year Interim Report**. Manitoba Conservation Report 2000-04.
Phillips, F. and V. Henderson. **Vegetation and Soil Monitoring Study in the Vicinity of 8-8 Battery, Tilston, Manitoba, 1999**. Manitoba Conservation Report 2000-05.
Hughes, C. E. Water Quality Management. **Water quality assessment of Rocky Lake, Manitoba, Canada**. Manitoba Conservation Report 2000-01.
Zebra Mussels in North America, Information Bulletin 2000-01E

Fisheries:

Manitoba Anglers' Guide 2001, with Fish Futures
Manitoba Fisheries Enhancement Initiative Annual Report 1999-2000
Manitoba Fisheries Enhancement Initiative - Working Together for Manitoba's Fisheries, 2000-2001
Manitoba Fisheries Five Year Report to the Legislature, Year Ending March 31, 1999

Forestry:

Dutch Elm Disease, pamphlet
Dutch Elm Disease Questions and Answers, pamphlet
Knowles, K., and Matwee, L. **Spruce Budworm 2000 Report and Predictions for 2001**
Spruce Budworm in Manitoba
Knowles, K., Skuba, J., Boyce, T. and Zubriski, G. **Using External Stem Defects to Estimate Volume Loss Caused by White Trunk Rot of Trembling Aspen**

Geographical Names:

Gazetteer of Canada: Manitoba (1999) CD-ROM
Geographical Names of Manitoba

Geomatics:

Dixon, R. and A. Derksen. **Monitoring Wild Rice in Manitoba Using RADARSAT-1**.

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Water Resources:

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Newman, K. E., Mansell, T. L., and Jones, R. E. **Biodiversity Inventory of the Lakeview and Westbourne PFRA Community Pastures**, Technical Report 2000-06W
Duncan, J. and Mazur, K. **Guidelines for Nocturnal Owl Monitoring in North America** (co-published)
Manitoba Hunting Guide 2000
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Manitoba's Species at Risk - An Overview
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Manitoba's Species at Risk - Piping plover
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Davies, H. and Manzo, L. **North St. James 1998 Natural Resources Survey**
Humburg, D., Caswell, D., Rusch, D., Gillespie, M., Telander, P. **Status and Trends of the Eastern Prairie Population of Canada Geese.** In: Towards Conservation of the Diversity of Canada Geese (Branta canadensis), Canadian Wildlife Service Occasional Paper Number 103.
Trapping Guide 2000-2001
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Chapter 23

Legislation

The Conservation Agreements Act C173
The Contaminated Sites Remediation Act C205
The Crown Lands Act C340
[except Sections 6, 7, 10, 12(1), 14, 16, 17, 18, 21, 23 and 24 to 28 both inclusive, insofar as they relate to the administration of Crown Lands which may be designated by the Minister of Conservation as agricultural Crown Lands, and Agricultural Crown Lands Grazing and Hay Permits Regulation (Manitoba Regulation 288/88) and Forage Leases Regulation (Manitoba Regulation 46/88 R)]
The Dangerous Goods Handling and Transportation Act D12
The Dutch Elm Disease Act D107
The Dyking Authority Act D110
The Ecological Reserves Act E5
The Endangered Species Act E111
The Energy Act E112
The Environment Act E125
The Fires Prevention Act (Part I) F80
The Fisheries Act (except Part III) F90
The Fishermen's Assistance and Polluters' Liability Act F100
The Forest Act F150
The Ground Water and Water Well Act G110
The Manitoba Habitat Heritage Act H3
The Manitoba Hazardous Waste Management Corporation Act H15
The Homeowners Tax and Insulation Assistance Act H75
(Part V and section 1 and Part VI as they related to subjects covered under Part V)
The International Peace Garden Act I70
The Lake of the Woods Control Board Act L30
The Manitoba Natural Resources Transfer Act N30
The Natural Resources Agreement Act, 1938 N40
An Act to ratify a certain Agreement between the Government of the Dominion of Canada and the Government of the Province of Manitoba N50
The Manitoba Natural Resources Transfer Act, Amendment Act N60
The Manitoba Natural Resources Transfer Act, Amendment Act, 1963 N70
The Ozone Depleting Substances Act O80
The Provincial Parks Act P20
The Plants Pests and Diseases Act P90
[that portion of clause 16(c) that pertains to arborists and clause 16(i)]
The High-Level Radioactive Waste Act R10
The Surveys Act (Part II) S240
The Sustainable Development Act S270
The Tourism and Recreation Act T100
(that portion of clauses 4(c) and (d), sections 5 and 6 and clauses 8(1)(a), (d), (f) and (g) that pertain to the licensing and operation of outfitters, hunting or fishing lodges and their out-camps)
The Waste Reduction and Prevention Act W40
The Water Commission Act W50
The Water Power Act W60
The Water Resources Administration Act W70
The Water Resources Conservation and Protection Act W72
The Water Rights Act W80
The Water Supply Commissions Act W100
The Wildfires Act W128
The Wildlife Act W130

[except that portion of clause 89(e) that applies to compensation for damage to crops caused by wildlife as it pertains to big game and migratory waterfowl]

The Wild Rice Act W140

The Manitoba Fishery Regulations made pursuant to Section 34 of the Fisheries Act (Canada)